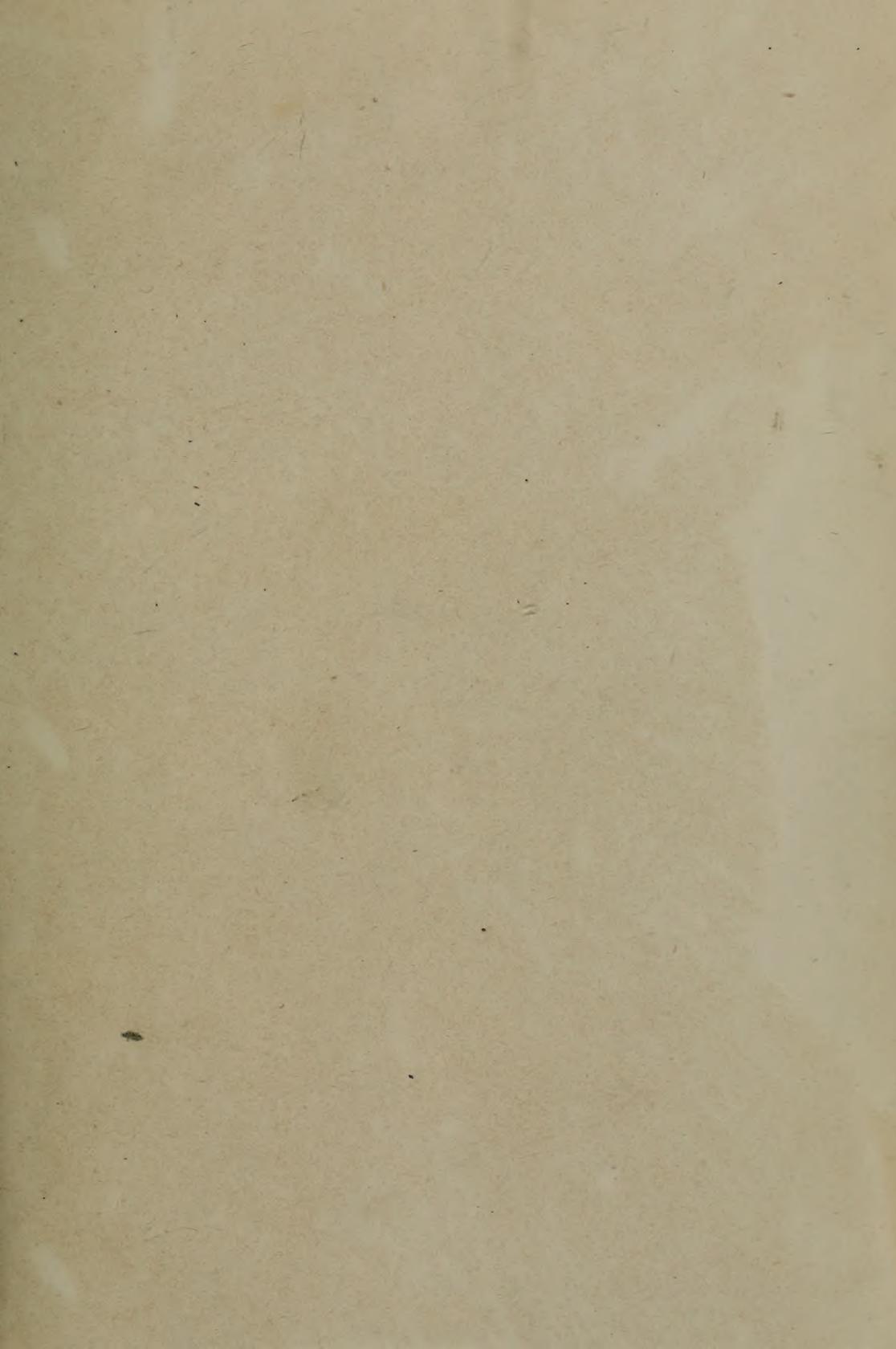
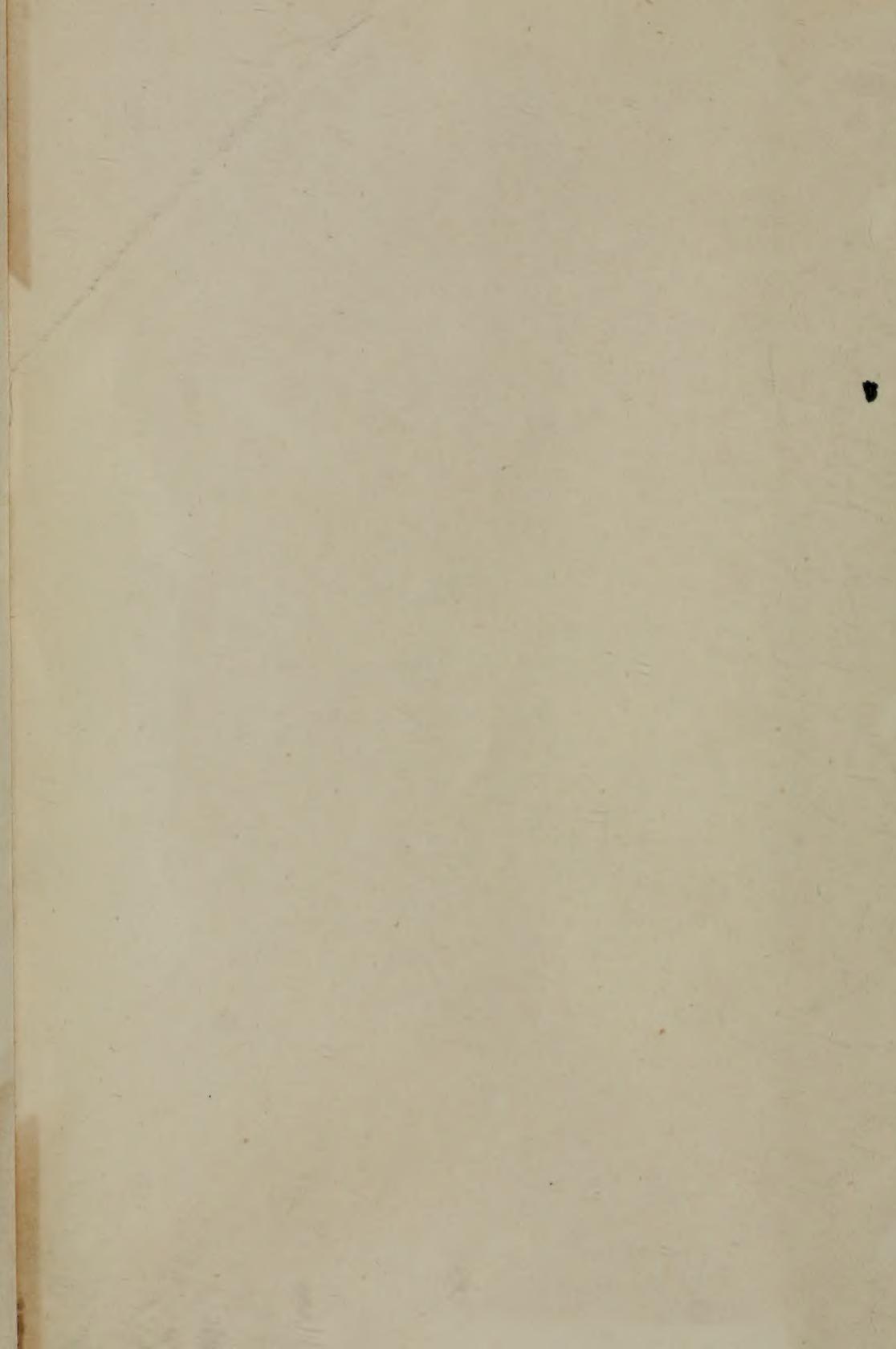


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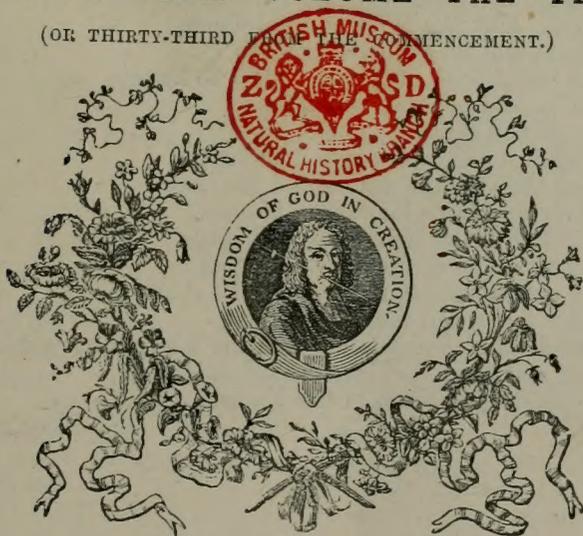
A  
POPULAR MISCELLANY

OF  
NATURAL HISTORY.

CONDUCTED BY  
EDWARD NEWMAN, F.L.S., F.Z.S.,  
MEMB. IMP. L.-C. ACAD.

SECOND SERIES.—VOLUME THE TENTH.

(OR THIRTY-THIRD FRENCH PERIODIC COMMENCEMENT.)



LONDON:  
JOHN VAN VOORST, 1, PATERNOSTER ROW

M.DCCC.LXXV.

"Nature gives to every time and season some beauties of its own; and from morning to night, as from the cradle to the grave, is but a succession of changes so gentle and easy that we can scarcely mark their progress."—DICKENS.

"Art sick? art sad? art angry with the world?  
Do all friends fail thee? Why, then, give thyself  
Unto the forest and the ambrosial fields:  
Commerce with them and the eternal sky.  
Despair not, fellow! He who casts himself  
On Nature's fair full bosom, and draws food,  
Drinks from a fountain that is never dry.  
The Poet haunts there; Youth that ne'er grows old  
Dwells with her and her flowers; and Beauty sleeps  
In her most green recesses, to be found  
By all who seek her truly."

BARRY CORNWALL.

"There is a gentler element, and man  
May breathe it with a calm unruffled soul,  
And drink its living waters till the heart  
Is pure. And this is human happiness!  
Its secret and its evidence are writ  
In the broad book of Nature. 'Tis to have  
Attentive and believing faculties;  
To go abroad rejoicing in the joy  
Of beautiful and well-created things;  
To love the voice of waters and the sheen  
Of silver fountains leaping to the sea;  
To thrill with the rich melody of birds  
Living their life of music; to be glad  
In the gay sunshine, reverent in the storm;  
To see a beauty in the stirring leaf  
And find calm thoughts beneath the whispering trees,  
To see, and hear, and breathe the evidence  
Of God's deep wisdom in the Natural world."

WILLIS.

# CONTENTS.

## ALPHABETICAL LIST OF CONTRIBUTORS.

- ASHMEAD, W. K.**  
British birds' eggs wanted in exchange for those of North America, 4652
- ATKINSON, Rev. J. C., M.A.**  
Hooded crows attacking partridges, 4420; Curious thrush's nest, 4456; Moorhen and snipe feeding on bread, 4457
- BALKWILL, F. H.**  
Teeth of sharks, 4344
- BARRINGTON, RICHARD M., LL.D.**  
Hairy-armed bat in the County Wicklow, 4532; Mouse eating flies, 4572; Rat killing its own species, 4662; Migration of red-wings, 4722
- BATTERSBY, F. I.**  
Innocent (?) rooks, 4538
- BELL, THOMAS, F.R.S., L.S.**  
Wall creeper at Stratton Hall, 4664
- BIRD, JOHN**  
Electric fish, 4625
- BOWERBANK, J. S., LL.D., F.R.S.**  
Portuguese man-of-war, 4706
- BOYES, F.**  
Hobbies in East Yorkshire, 4297; Food of the blue tit, 4298; Extraordinary vitality in a partridge, Sclavonian grebe in East Yorkshire, 4299; Guillemot bringing down its young from the cliff, 4342
- BREE, C. R., M.D., F.L.S.**  
New European bird, 4680; New British bird, 4721
- BRIGGS, T. R. ARCHER, F.L.S.**  
Chiffchaff in February near Plymouth, 4381
- BUTLER, ARTHUR G., F.L.S.**  
Notes on birdsnesting in Kent, 4565
- BUTTERFIELD, E.**  
Pied flycatcher near Bolton, 4498; Pied flycatcher, golden oriole and hoopoe near Bradford, 4623; White sand martin and black-bird, 4625
- CAREY, C. B.**  
A word about Museums, 4406
- CHAMBERS, ROBERT**  
The gannet, 4342
- CHEARNEY, R.**  
Large roach in the Lea, 4726
- CHRISTY, R. M.**  
A turtle dove's nest utilised by a wood pigeon, 4723
- CLARK-KENNEDY, Capt. A., F.R.G.S.**  
The redbacked shrike a butcher, 4721; Bloch's gurnard in Galloway, 4724; Sun-fish in Fleet Bay, Galloway, 4725
- CLARK-KENNEDY, ARTHUR JOHN**  
The heron preying on birds, 4340; Tawny pipit, 4456; Whitetailed eagle in Suffolk, Osprey in Suffolk, 4690
- CLARKE, W. E.**  
Great northern diver in Bridlington Bay, 4299
- CLIFTON, Lord**  
Supposed occurrence of *Sylvia aquatica* in Kent, 4693
- CLOGG, STEPHEN**  
Little bustard near Looe, Cornwall, 4339; Slow-worm abroad on the 26th of December, 4343; Pied rook, 4421
- COPE, W. J.**  
Blackheaded gulls at South Kirkby, 4541
- COCKS, A. H.**  
Wild cats, 4453
- CORBIN, G. B.**  
Merlin in the New Forest, 4337;

- Swallows and martins and fieldfares, 4338; Wild cat near Ringwood, 4376; Siskin, lesser redpoll, &c., near Ringwood, 4382; Nesting of the teal in Hampshire, 4457; Coot near Ringwood, 4458; Stoat near Ringwood, 4492; Montagu's harrier in Hampshire, 4496; Shieldrake near Ringwood, 4500; The cuckoo, 4538; Bitterns in South-Western Hampshire during the winter of 1874-5, 4540; Osprey in Hampshire, 4690; Varieties of blackbird and thrush, 4691; Fieldfares *versus* missel thrushes and starlings, 4692; Young cuckoo and robin—a case of adoption, 4695
- CORDEAUX, JOHN**  
Ornithological notes from North Lincolnshire, 4294, 4361, 4488, 4617, 4669, 4709
- CORNISH, THOMAS**  
Torpedo, electrical ray or numbfish, on the Cornish coast, 4500; Spinous shark in Mount's Bay, 4501; Ray's bream at Penzance, 4542; Large surmullet off Penzance, 4668, 4704
- COUCH, JAMES**  
Rare birds in Guernsey, 4296, 4379
- DALGLEISH, JOHN J.**  
Shieldrake in the Færoe Islands, 4383
- DILLON, JOHN F.**  
Blackwinged kite in Ireland, 4455
- DISTANT, W. L.**  
Snake-eating snake, 4625
- DOUBLEDAY, HENRY (the late)**  
Critical notices (accompanied by the passages criticised) of a work intitled "A Catalogue of the Birds of Northumberland and Durham, by John Hancock," 4429
- DURNFORD HENRY**  
Additions to the Avifauna of the Færoes, 4623
- FEILDEN, Major H. W., R.A.**  
Additions to the Avifauna of the Færoe Islands, 4495
- FORBES, W. A.**  
Instances of albinism required, 4378; *Psittacula passerina*, 4664
- GATCOMBE, JOHN**  
Large numbers of the greater shearwater off the coasts of Devon and Cornwall, 4300; Ornithological notes from Devonshire, Cornwall, &c., 4370, 4448, 4490, 4568, 4635; Hairy-armed bat in the County Armagh, 4419; Grampus captured in the River Tamar, Food for pet whales, 4572; Malformation in the head of a chick, 4665; *Physalia pelagica* on the coast of Devon, 4668; Ornithological notes from Somersetshire during September (1875), 4671; Ornithological notes from Somersetshire and Devonshire, 4716
- GILLAH, THOMAS**  
Stock dove in a magpie's nest, 4539
- GRIPPER, JOSEPH E.**  
Late breeding of the wood pigeon, 4696
- GUNN, T. E.**  
Wild fowl in Norfolk, Pied blackbirds near Norwich, Starvation of kingfishers, &c., 4337; Little bustard in Norfolk, 4340; Bitterns in Norfolk, 4341; Black-throated diver in Norfolk, 4422; Seal on the Norfolk coast, 4652; Montagu's harrier breeding in Norfolk, 4663; Hoopoe near Norwich, 4664; Albino swallow near Norwich; Solitary snipe in Norfolk, 4665; Spotted redshank in Norfolk, 4666
- GURNEY, J. H.**  
Redwing killed by a crow, 4381; Variety of the razorbill, 4382; Note on *Haliaeetus vocifer* and *Bubo capensis*, 4419; Parrakeets and locusts in Australia, 4456; Longevity of a wild duck, 4541; On the snowy owl nesting in confinement, 4573; Large pike, 4574; Hobby feeding on bats, Further note on the young of the snowy owl hatched in confinement, 4663; Note on the lesser gray shrike, Note on the small parrot of Natal, 4691; *Tichodroma phœnicoptera* in Norfolk, 4695
- GURNEY, J. H., jun.**  
Descent of the young guillemot from its cliff, Herring gulls carrying off wounded dunlins, 4666;

- Pomatorhine skuas and black guillemots at Flamborough, 4667; The redbacked shrike a butcher, 4691; American whitewinged crossbill in the North Sea, The whitebacked woodpecker a British bird, 4695; Plumage of the stilt, Green sandpiper at Northrepps, Young razorbills and guillemots, 4697; Redthroated diver, Audacity of the common skua, 4698; The value of Natural-History specimens, Bird's nest in the fleece of a living sheep, 4720; Supposed occurrence of the Jugger falcon (*Falco Juggur*, Gray) off the coast of Yorkshire, 4721; Waxwings without wax, 4723; The last native great bustard, The roseate down of bustards, Pratincole (*Glareola pratincola* (Linn.)), 4724; Sun-fish at Overstrand, in Norfolk, 4725
- HAAST, JULIUS, Ph.D., F.R.S.**  
Researches and excavations carried on in and near the Moa-bone Point Cave, Summer Road, in the year 1872, 4513, 4554, 4643
- HADFIELD, Capt. HENRY**  
Instinct of birds: olfactory power of the vultures, 4373; Basking shark off Shanklin Chine, Isle of Wight, 4415; Spring migrants, 4495, 4537, 4623; Additional particulars of Montagu's harrier breeding in the Isle of Wight, 4672; Birds and specimens noticed during a short stay in France, Switzerland and Italy, 4676; On the migration of birds, 4711; A monstrosity, 4720
- HAMEL, EGBERT D.**  
Cuckoos congregating: pigeons laying in a magpie's nest, 4573
- HARTING, J. EL., F.L.S.**  
Colour of the shell in *Helix pomatia*, 4705
- HERBERT, W. H.**  
Marsh harrier near Newbury, 4381
- HODGKINSON, J. B.**  
Brown snipe near Southport, 4341
- HUGHES, W. R., F.L.S.**  
A visit to the Gouliot Caves at Sark, 4309; Large salmon, 4460
- HUMBLE, W. J.**  
Stock dove in Northumberland, 4573
- KEMP-WELCH, E. B.**  
Tenacity of life in sharks, 4460
- KNIGHT, V.**  
Stock dove in Northumberland, 4500
- LEGG, W. H.**  
Little gull in summer plumage in February, 4459
- LLOYD, W. A.**  
The Royal Aquarium and Winter Garden Society at Westminster, 4301
- MATHEW, GERVASE F., R.N., F.L.S.**  
Large sturgeon at Torquay, 4301; Ornithological notes from Dartmouth, 4325
- MATHEW, Rev. MURRAY A., M.A.**  
Flight of a male peregrine at an old male hen harrier, 4296; Rock dove at Instow, 4299; Pomatorhine skua at Instow, 4300; The Somersetshire moors in the spring, 4532; Rare birds in North Devon, 4720
- MORE, A. G., F.L.S., M.R.I.A.**  
Notice of a gigantic cephalopod (*Dinoteuthis proboscideus*) which was stranded at Dingle, in Kerry, two hundred years ago, 4526; Some account of the gigantic squid (*Architeuthis Dux*) lately captured off Boffin Island, Connemara, 4569
- NEWMAN, EDWARD, F.L.S., &c.**  
Quadripare, a newly-associated group of birds, 4296; Shore lark near Bideford, 4337; Bitterns in England, Ireland and Wales, 4341; The Arctic Expedition, 4383; The dokos of South Africa; explanatory note, 4445; Obituary notice of the late Dr. Gray, 4466; "Telescope fishes," 4501
- NEWTON, Prof. ALFRED, M.A., F.R.S.**  
Notes on birds which have been found in Greenland, 4589; On certain neglected subjects of Ornithological investigation, 4637
- NICHOLLS, H.**  
Albinism or leucotism in birds, 4652; Singular freak of a herring gull, 4698
- NICHOLLS, RICHARD P.**  
Boar-fish at Torcross, 4460; Merlin killed against telegraph wires,

- 4690; White partridge near Kingsbridge, 4696; Longtailed duck in Kingsbridge Estuary, 4697
- NICHOLSON, FRANCIS  
Birds nesting in confinement, 4380
- O'CONNOR, THOMAS  
Capture of an enormous cuttle-fish off Boffin Island, on the coast of Connemara, 4502
- PALMER, J. E.  
Birds observed near Huddersfield, 4379; Nightingale near Huddersfield, 4499
- PARSONS, W. E.  
Catocala Fraxini at Eastbourne, 4626; Deiopeia pulchella at Eastbourne, 4668
- PIKE, WILLIAM  
Climate and Ornithology of Achill, 4534
- PILLY, J. B.  
Hobby and Egyptian goose near Hereford, 4381
- PORRITT, GEORGE T., F.L.S.  
Moultling freak of a robin, 4297
- POTTS, T. H., F.L.S.  
On the birds of New Zealand, 4409, 4477
- PRENTIS, WALTER  
Bones of ruminants in Medway Saltings, 4335
- RICKARDS, MARCUS S. C., F.L.S.  
Hobby at Portishead and golden-eye near Axbridge, 4297; White-throat's nest twelve feet from ground, 4298
- ROCKE, JOHN  
Sabine's gull, 4299
- RODD, EDWARD HEARLE  
Little bustard near the Lizard, 4339; Graylag goose near Penzance, Fulmar petrel in Mount's Bay, 4459; Spring migration at the Land's End district, 4494; Golden oriole at the Land's End and in Scilly, 4499
- SAXBY, Rev. STEPHEN H., M.A.  
Whitebacked woodpecker, 4723
- SCLATER, JOHN  
Notes from Castle Eden, 4329, 4401; Hobby preying on bats, 4537; Gigantic puffballs pecked by rooks, 4665
- SCLATER, P. L., M.A., F.R.S.  
Fruit-eating snakes, 4574
- SHARP, W.  
Crows attacking small birds, 4456; Fruit-eating snakes, 4541
- SMEE, A. H., F.C.S., S.S.  
Notes of a cruise at the mouths of the Thames and Blackwater rivers, 4451; Pigeons resting on trees, 4499; Migration of waders, 4663
- SMITH, Rev. ALFRED CHARLES, M.A.  
Little bustard in Norfolk, 4421
- SMITH, CECIL  
Ornithological notes from Somersetshire, 4332; Albino and other variations of plumage in birds, 4422; Marsh warbler (*Acrocephalus palustris*) in Somersetshire, 4713
- SMITH, FRANCIS, R.N.  
A few additional notes on the habits of the flying fish, 4413
- SOUTHALL, W., F.L.S.  
Birds in my garden, 4533
- SOUTHWELL, THOMAS  
Common porquol on shore at Hap-pisburgh, on the Norfolk coast, 4418, 4455; Greenland shark off the Suffolk coast, 4424
- STEVENSON, HENRY, F.L.S.  
Ornithological notes from Norfolk, 4289, 4366, 4629
- STOREY, THOMAS J.  
Siskin nesting near Durham, 4420
- SWAYSLAND, GEORGE, jun.  
Pied flycatcher at Brighton, 4691; Tawny pipit at Brighton, 4694; Lapland bunting at Brighton, 4695
- SWEETAPPLE, EDWARD  
Habits of the chimney swallow in the United States, 4624
- THOMAS, W.  
Variety of blackbird, 4538
- THOMASSON, JOHN P.  
Nightingale's nest in a fir tree, 4381
- TOWNSEND, C. T.  
Little bustard at Walton-on-the-Naze, 4339
- TUCK, JULIAN G.  
Notes from Aldeburgh, Suffolk, 4536; Rare birds at Flam-borough, 4680
- WARREN, ROBERT, jun.  
Pied flycatcher in County Mayo,

- 4498; Notes on the autumnal migration of *Lestris Richardsonii* and *L. pomarinus* in Killala Bay and the Moy Estuary, 4699
- WEIR, J. JENNER, F.L.S.  
Notes on the Zoological Gardens at Cologne and Antwerp, 4398
- WHARTON, C. BYGRAVE  
Does the male blackcap have a black head during the winter? 4722
- WILLMOTT, C.  
Golden eagle near Chatteris, 4703
- WHITAKER, J.  
Capercaille in Nottinghamshire, 4338, 4382; Bitterns in Nottinghamshire, 4341; Gray phalarope in Nottinghamshire, 4342; Curlew in Nottinghamshire, 4382; Arrival of spring birds in Nottinghamshire, Peregrine falcon in Nottinghamshire, 4537
- WHITE, T. CHARTERS  
Aërating aquariums, 4383
- WOODWARD, R. B. & J. D. S.  
Notes on the Natural History of South Africa, 4349, 4389, 4441, 4469, 4509, 4549, 4612
- WRIGLEY, JOHN  
Richardson's skua and storm petrel at Formby, Lancashire, 4300

## ALPHABETICAL LIST OF SUBJECTS.

- Acanthisitta chloris*, 4478
- Achill, climate and Ornithology of, 4534
- Acrocephalus palustris*, 4713
- Albinism, instances of requested, 4378; or leucotism in birds, 4652
- Anarhynchus frontalis*, 4484
- Antelopes, bush, 4550
- Anthropoides paradisea*, 4510  
    *virgo*, *id.*
- Aquariums, aërating, 4383
- Architeuthis Dux*, 4569
- Arctic Expedition, 4383
- Athene Novæ-Zelandiæ*, 4477
- Avifauna of the Færoe Islands, additions to the, 4495, 4623
- Baboon, pigfaced, 4442
- Baboons, *id.*
- Bat, hairy-armed, in the County Armagh, 4419; in the County Wicklow, 4532
- Bathyergus maritimus*, 4444
- Bats, hobby eating, 4292; hobby preying on, 4537; feeding on, 4663
- '*Bibliotheca Ichthyologica et Piscatoria*; being a Catalogue of Books and Pamphlets on the Natural History of Fishes and of Cetacea, on Pisciculture, Fishes, and Legislation respecting Fishes,' 4627
- Bird, new European, 4689; new British, 4721
- Bird-skins, American, 4623
- Birds, newly-associated group of, 4296; rare, in Guernsey, *id.*, 4379; exportation of to New Zealand, 4335; heron preying on, 4340; killed against the Cromer Light-house, 4366; instinct of, 4373; observed near Huddersfield, 4379; nesting in confinement, 4380; weaver, 4396; condition of in the Dene during the severe frost, 4404; of New Zealand, 4409, 4477; albino and other variations of plumage in, 4422; of prey, adult plumage of, 4429; small, crows attracting, 4456; migration of, 4494, 4711; in my garden, 4533; foresight of, 4536; spring, arrival of in Nottinghamshire, 4537; which have been found in Greenland, notes on, 4589; albinism or leucotism in, 4652; British, eggs of wanted in exchange for those of North America, *id.*; and specimens noticed during a short stay in France, Switzerland and Italy, 4676; rare, at Flamborough, 4689; migratory, at Port Said, *id.*; rare, in North Devon, 4720
- Birdsnesting in Kent, 4565
- 'Birds of Shetland, with Observations on their Habits, Migration and Occasional Appearance,' 4269
- 'Birds of the North-West; a Handbook of the Ornithology of the Region drained by the Missouri River and its Tributaries,' 4586
- Bittern, 4365, 4366, 4403, 4629; in South-Western Hampshire, 4540
- Bitterns in England, Ireland and Wales, 4341; in Nottinghamshire, *id.*; in Norfolk, *id.*

- Blackbird, 4295, 4327; variety of, 4538, 4691; white, 4625  
 Blackbirds, pied, near Norwich, 4337  
 Blackcap, does the male have a black head during the winter? 4722  
 Black wood-hen, 4486  
 Boar-fish at Torcross, 4460  
 Boas, 4354  
 Bones of ruminants in Medway Saltings, 4335  
 Books received, 4585, 4627, 4668  
 Brambling, 4363  
 Bream, Ray's, at Penzance, 4542  
*Bubo capensis*, 4353, 4419  
*Buceros Buccinator*, 4393  
 ——— *coronatus*, 4392  
 Bunting, Lapland, at Brighton, 4695  
 ——— snow, 4295, 4669  
 Buntings, snow, nesting in confinement, 4290  
 Bush hunt in Natal, 4551  
 Bustard, great, the last native, 4726  
 ——— little, near the Lizard, 4339; near Looe, Cornwall, *id.*; in the Isle of Wight, *id.*; at Walton-on-the-Naze, *id.*; in Norfolk, 4340, 4369, 4421; in Essex and Cornwall, 4369  
 Bustards, 4441; the roseate down of, 4726  
 Buzzard, 4294, 4710
- Camel in Australia, 4618  
 Camels reared in the United States, 4493  
*Cannabina linota*, 4434  
 Capercaillie in Nottinghamshire, 4338, 4382; contents of crop of, 4338  
*Caprimulgus Natalensis*, 4614  
*Carpophaga Novæ-Zelandiæ*, 4483  
 Cassowaries, descriptive list of the, 4685  
 Cassowary, Australian, 4686  
 ——— Beccari's, *id.*  
 ——— Bennett's, 4687  
 ——— common, 4686  
 ——— one-wattled, 4687  
 ——— painted-necked, *id.*  
 ——— Papuan, *id.*  
 ——— Westernman's, *id.*
- Cat, wild, near Ringwood, 4376; in Hertfordshire, 4377  
 Catocala Fraxini at Eastbourne, 4626  
 Cats, wild, 4453  
 Caves, Gouliot, at Sark, a visit to, 4309  
 Cephalopod, gigantic, stranded at Dingle, in Kerry, two hundred years ago, 4526; the monster described, 4530
- Cerambycidae*, 4348  
*Cercopithecus callitrichus*, 4443  
 ——— *Petaurista*, 4444  
*Certhiparus albicilla*, 4478  
*Ceryle maxima*, 4475  
 Chacma, 4442  
 Chaffinch nesting in confinement, 4289  
*Charadrius obscurus*, 4484  
 Chick, malformation in the head of a, 4665  
 Chiffchaff in February near Plymouth, 4381  
*Chrysochloris capensis*, 4476  
*Chrysococcyx lucidus*, 4482  
 Civets, 4510  
*Clotho arietina*, 4389  
 Cockchaffer, colouring matter from the, 4428  
 Collection, the Rudston, 4407; the Strickland, 4408  
*Columba arquatrix*, 4615  
 ——— Guinea, *id.*  
 Coot, 4328; near Ringwood, 4458  
 Cormorant, 4327  
*Corvus albicollis*, 4475  
 ——— *capensis*, 4476  
 ——— *scapulatus*, *id.*  
 Coues, Elliott, 'Birds of the North-West,' 4586  
 Crane, Baillon's, 4292, 4334  
 Cranes, 4509  
 Creeper, 4478  
 ——— wall, at Stratton Hall, 4664  
 Crocodiles, 4469  
 Crookbill, 4484  
 Crop of a capercaillie, contents of, 4338  
 Crossbill, American whitewinged, in the North Sea, 4695  
 ——— common, 4433  
 Crow, carrion, 4328; redwing killed by a, 4381; or ring-necked, 4475  
 ——— cornland, 4476  
 ——— hooded, 4294, 4379, 4429; attacking partridges, 4420  
 ——— orange-wattled, 4479  
 Crows attacking small birds, 4456  
 Cuckoo, 4538; young, and robin—a case of adoption, 4695  
 ——— longtailed, 4482  
 Cuckoos congregating, 4573  
 Curlew, 4327; in Nottinghamshire, 4382  
 Cuttle-fish, enormous, off Boffin Island, on the coast of Connemara, 4502

- Cynocephalus porcarius*, 4442  
 Deal-fish in Ireland, 4343  
*Deiopeia pulchella* at Eastbourne, 4668  
*Dinoteuthis proboscideus*, 4526  
*Diomedea melanophrys*, 4487  
 Dipper, 4379, 4488  
 Diver, blackthroated, 4369; in Norfolk, 4422  
 ——— great northern, in Bridlington Bay, 4299  
 ——— redthroated, 4401, 4698, 4709  
 Divers, 4512  
 Doko or Soko of Central and South Africa, 4357  
 Dokos of South Africa, 4445  
 Dove, cinnamon, 4617  
 ——— ringed turtle, 4616  
 ——— rock, at Instow, 4299  
 ——— stock, in Northumberland, 4500, 4573; in a magpie's nest, 4539  
 ——— turtle, 4294, 4616; nest of, utilised by a wood pigeon, 4723  
 Doves, turtle, nesting in confinement, 4290  
 Duck, eider, 4365  
 ——— longtailed, in Kingsbridge Estuary, 4697  
 ——— tufted, 4326  
 ——— wild, 4331, 4402; longevity of, 4541; food of, 4732  
 Dunlins, wounded, herring gulls carrying off, 4666  
 D'Urban, Henry S. M., 'Handbook of Devonshire,' &c., 4628  
 Eagle, bald or sea, 4351  
 ——— golden, near Chatteris, 4703  
 ——— whitetailed, 4334; in Northamptonshire, 4337; in Suffolk, 4690  
 Eggs of British Birds wanted in exchange for those of North America, 4652  
 Electric fish, 4625  
 Entomological Society of London, proceedings of, 4304, 4346, 4387, 4426, 4461, 4506, 4546, 4579, 4728  
*Eudynamis tahitiensis*, 4482  
*Eudyptes*, 4486  
*Falco ferox*, 4412  
 ——— *Novæ-Zelandiæ*, 4409  
 Falcon, jugger, supposed occurrence off the coast of Yorkshire, 4721  
 ——— peregrine, in Nottinghamshire, 4537; on the Tamar, 4719  
 Fieldfares, &c., early, 4293; and swallows and martins, 4338; in Hants, 4623; *versus* missel thrushes and starlings, 4692  
 Fish, flying, a few additional notes on the habits of, 4413; angling for, *id.*; motion of under water, 4414; electric, 4625; from the clouds, 4704  
 Flies, mouse eating, 4571  
 Flycatcher, pied, near Bolton, 4498, 4623; in County Mayo, 4498; in North Lincolnshire, 4669; at Brighton, 4691  
 Flycatchers, 4479  
 Food of blue tit, 4298; for pet whales, 4572; of black woodpecker, 4732; of wild duck, *id.*  
 Fowl, wild, in Norfolk, 4337  
 Fruit-eating snakes, 4541, 4574  
*Gallinago pusilla*, 4486  
 Gannet, 4325, 4335, 4342  
*Geronticus calvus*, 4356  
*Gerygone*, 4478  
*Glaucopsis cinerea*, 4479  
 Glover, Townsend, 'Manuscript Notes from My Journal,' 4587  
 Goatsucker, 4614  
 Godwit, bartailed, 4294  
 ——— blackwinged, 4631  
 Goldeneye near Axbridge, 4297  
 Goldfinch, 4363, 4379  
 Goosander, 4629  
 Goose, Egyptian, 4332, 4381  
 ——— graylag, near Penzance, 4459  
 ——— pinkfooted, 4333, 4364  
 Grampus captured in the River Tamar, 4572  
 Grass-snakes, 4389  
 Gray, Dr., the late, obituary notice of, 4466  
 Grebe, eared, 4332  
 ——— Slavonian, in East Yorkshire, 4299; in North Lincolnshire, 4489  
 Greenfinch, 4670  
 Grivet, 4444  
 Grosbeak, yellowbellied, 4397  
 Grouse, red, 4437  
 Guinée, M. Achille, 'Statistique Scientifique d'Eure et Loire — Lépidoptères,' 4668  
 Guillemot bringing down its young from the cliff, 4342; descent of the young from its cliff, 4666  
 ——— black, 4630; at Flamborough, 4667  
 Gull, blackheaded, 4325  
 ——— great blackbacked, 4489

- Gull, herring, singular freak of, 4698  
 — large, 4487  
 — little, in summer plumage in February, 4459  
 Gulls, 4327  
 — blackheaded, at South Kirkby, 4541  
 — herring, carrying off wounded dunlins, 4666  
 Gurnard, Bloch's, in Galloway, 4724  
 Gyps Kolbii, 4613
- Halcyon fuscicapilla, 4474  
 — natalensis, *id.*  
 — semitorquata, *id.*  
 Haliaëtus vocifer, 4351, 4419  
 'Handbook of Devonshire, &c., with a Sketch of the Natural History,' 4628  
 Hare, jumping, 4395  
 Harrier, hen, old male, flight of a male peregrine at, 4296  
 — marsh, near Newbury, 4381; in North Lincolnshire, 4488  
 — Montagu's, in Hampshire, 4496; nesting in the Isle of Wight, 4653; additional particulars of, 4672; breeding in Norfolk, 4663  
 Harting, James Edmund, F.L.S., &c., 'Rambles in Search of Shells,' 4627  
 Hawk, blackcrested, 4472  
 Hawks, 4472  
 Helamys capensis, 4395  
 Helix pomatia, colour of the shell in, 4705  
 Heron, 4325, 4330, 4630; preying on birds, 4340  
 Hobbies in East Yorkshire, 4297  
 Hobby preying on bats, 4292, 4537, 4663; at Portishead, 4297; near Hereford, 4381  
 Hoopoe near Bradford, 4623; in Norfolk and Suffolk, 4633; near Norwich, 4664; near Ipswich, 4695  
 Hornbill, pied, 4393  
 Hornbills, 4392  
 Huia, 4477  
 Hyrax capensis, 4395  
 Hystrix cristatus, 4351
- Ibis, common, 4356  
 — green, *id.*  
 — sacred, *id.*  
 Ichneumons, 4510  
 Imambas, 4354  
 Instinct of birds, 4373  
 Investigation, ornithological, on certain neglected subjects of, 4657
- Kaka, 4482  
 Kelp-hen, 4486  
 Keropia crassirostris, 4479  
 Kestrel and titmice, 4326  
 Kingfisher, 4405, 4473  
 — great, 4475  
 Kingfishers, &c., starvation of, 4337  
 Kite, 4333  
 — blackwinged, in Ireland, 4455  
 Kittiwake, 4325, 4330  
 Knot, 4670  
 Kokako, 4479  
 Koran, 4441
- Lagopus scoticus, 4437  
 Lapwing, 4326  
 Lark, 4294  
 — shore, near Bideford, 4337  
 Larks, 4363  
 Larus dominicanus, 4487  
 Leopard, 4349  
 'Lepidopterist's Calendar; giving the Time when the British Lepidoptera appear in the Egg, Larval, Pupal and Imago States, with Food-plant and Habitat,' 4585  
 Lestris catarractes, 4487  
 — pomarinus and Richardsonii, autumnal migration of in Killala Bay and the Moy Estuary, 4699  
 Linnets, common, 4434  
 Lions in Algeria, 4492  
 Lloyd, W. A., 'Twelve Plain and Practical Articles on Marine and Freshwater Aquaria,' 4587  
 Locusts and parakeets in Australia, 4456  
 Longevity of a wild duck, 4541  
 Lophoaëtus occipitalis, 4472  
 Louries, 4549  
 Lutra capensis, 4389
- Magpie's nest, stock dove in, 4359; pigeons laying in, 4573  
 Maigre off Yarmouth, 4725  
 Man-of-war, Portuguese, 4706  
 'Manual of the Mollusca; being a Treatise on Recent and Fossil Shells,' 4628  
 'Manuscript Notes from My Journal; or Illustrations of Insects, Native and Foreign—Diptera or Two-winged Flies,' 4587  
 Martin, sand, white, 4625; late, 4719  
 Martins and swallows and fieldfares, 4338  
 Merlin in the New Forest, 4337; near

- Huddersfield, 4379; killed against telegraph wires, 4690
- Merrin, Joseph, 'Lepidopterist's Calendar,' 4585
- Migrants, summer, late appearance of, 6293; winter, and the frost, 4367; spring, 4495, 4537; summer, 4632
- Migration, spring, at the Land's End district, 4494; of redwings, 4722
- Migratory waders, 4292
- Moa-bone Point Cave, Sumner Road, researches and excavations carried on in and near in the year 1872, 4513, 4554, 4643; geological features, 4514; position of the cave, 4516; contents of the cave, 4517, 4554; list of objects found in the Lower or Moa-hunter deposits, 4561; in the Upper or Maori deposits, 4563; excavations among the sand-hills outside the cave, 4643; objects collected near the Kitchen Middens of the Moa-hunters, amongst the sand-dunes near, 4645
- Mole, golden, 4476
- Moles and mole-catching, 4493
- Molly-mawk, 4487
- Monitors, 4469
- Monkey, green, 4443
- Monkeys, *id.*
- Monstrosity, 4720
- Moorhen and snipe feeding on bread, 4457
- Moors, Somersetshire, in the spring, 4532
- Mooruk, 4687
- More-pork, 4477
- Moultling freak of a robin, 4297
- Mouse eating flies, 4571
- Museum, Bristol, 4406; York, 4407
- Museums, a word about, 4406
- Natural History of South Africa, notes on, 4349, 4389, 4441, 4469, 4509, 4549, 4612
- Nelly, white, 4486
- Neomorpha Gouldi, 4477
- Nest, thrush's, pied wagtails building on, 4291; whitethroat's, twelve feet from the ground, 4298; nightingale's, in a fir tree, 4381; thrush's, curious, 4456; magpie's, stock dove in, 4539; pigeon laying in a magpie's, 4573; bird's, in the fleece of a living sheep, 4720; a turtle dove's utilised by a wood pigeon, 4723
- Nesting of chaffinch in confinement, 4289; of turtle doves in confinement, 4290; of snow buntings in confinement, *id.*; of siskin near Durham, 4420; of teal in Hampshire, 4457; of snowy owl in confinement, 4573; of golden oriole in Kent, 4624; of pochards and other fowl in Norfolk, 4634; of Montagu's harrier in the Isle of Wight, 4653
- Nestor meridionalis, 4482
- Nests of blue tits and missel thrushes, 4291
- Newton, Alfred, M.A., F.R.S., 'Zoology,' 4439
- Nightingale near Huddersfield, 4429
- Nightingale's nest in a fir tree, 4381
- Notes from Castle Eden, 4329, 4401; from Aldeburgh, Suffolk, 4536; on birdsnesting in Kent, 4565; on birds which have been found in Greenland, 4589
- Notices, critical, of a work intituled 'A Catalogue of the Birds of Northumberland and Durham, by John Hancock,' 4429
- Numbfish on the Cornish coast, 4500
- Ocydromus fuscus, 4486
- Oriole, golden, at the Land's End and in Scilly, 4499; near Bradford, 4623; nesting in Kent, 4624
- Ornithological and entomological interruptions to telegraphy in India, 4336
- Ornithological notes from Norfolk, 4289, 4366, 4629; from North Lincolnshire, 4294, 4361, 4488, 4617, 4669, 4709; from Dartmouth 4325; from Somersetshire and Devonshire, 4322, 4671, 4716; from Devonshire, Cornwall, &c., 4370, 4448, 4490, 4568, 4635
- Ornithology and climate of Achill, 4534
- Orthonyx albicillus, 4478
- ochrocephala, *id.*
- Ortygometra affinis, 4486
- tabuensis, *id.*
- Osprey, 4328, 4718; in Suffolk, 4690; in Hampshire, *id.*
- Ossifraga alba, 4486
- Otis afroides, 4441
- Kori, *id.*
- Otter, 4389
- Owl, barn, 4330
- common eared, 4471
- eagle, 4353

- Owl, short-eared, 4719  
 — snowy, nesting in confinement, 4573; further note on the young of, 4663  
 — swamp, 4471  
 Owls, 4470
- Paauw, 4441  
 Parrakeet, bluewinged, 4549  
 Parrakeets and locusts in Australia, 4456  
 Parrot, small, of Natal, 4691  
 Parrots, 4549  
 Partridge, extraordinary vitality in a, 4299  
 — redlegged, 4710  
 — white, near Kingsbridge, 4696  
 Partridges, hooded crow attacking, 4420  
 Peregrine, male, flight of at an old male hen harrier, 4296  
 Peristera chalcospilos, 4616  
 — larvata, 4617  
 Petrel, fulmar, in Mount's Bay, 4459  
 — storm, at Formby, Lancashire, 4300  
 Petroica macrocephala, 4478  
 Phalacrocorax capensis, 4512  
 Phalarope, gray, in Nottinghamshire, 4342  
 — rednecked, 4289, 4292, 4293  
 Physalia pelagica on the Coast of Devon, 4668  
 Pigeon, 4482  
 — black, 4615  
 — green, *id.*  
 — slate-coloured, *id.*  
 — wood, 4295, 4328, 4364; late breeding of, 4696; turtle dove adopted by, 4723  
 Pigeons resting on trees, 4499; laying in magpie's nest, 4573  
 Pike, large, 4574  
 Pipit, tawny, 4456; at Brighton, 4694  
 Platycercus, 4482  
 Ploceus Oryzæ, 4397  
 — spilonotus, 4396  
 Plotus Anhinga, 4512 (*read* P. Levallantii, 4553)  
 Plover, 4484  
 — green, 4363  
 — Kentish, 4719  
 — masked, 4485  
 — stilt, 4631, 4634  
 Pochards and other fowl nesting in Norfolk, 4634
- Podica Mozambicana, 4513  
 Porcupine, 4351  
 Pratincole, 4726  
 Prionidæ, 4347  
 Psittacula passerina, 4549, 4664  
 Psittacus Levallantii, 4549  
 Puff-adders, 4389  
 Pythons, 4354
- Quadriparæ, 4296  
 Quail-hawk, 4409
- Rabbit, rock, 4395  
 Rail, water, 4409  
 "Rambles in Search of Shells, Land and Freshwater," 4627  
 Rat, canc, 4444; killing its own species, 4662  
 Rats and gas-pipes, 4378  
 Ray, electrical, on the Cornish coast, 4500  
 Razorbill, variety of, 4382  
 Razorbills, young, 4697  
 Redpoll, lesser, near Ringwood, 4382  
 Redshank, spotted, 4632; in Norfolk, 4666  
 Redwing killed by a crow, 4381  
 Redwings, migration of, 4722  
 Reeve, 4669  
 "Reprint of Boddaert's Table des Planches Enluminées, d'Histoire Naturelle," 4438  
 Rhipidura, 4479  
 Rivers, Thames and Blackwater, notes of a cruise at the mouths of, 4451  
 Roach, large, in the Lea, 4626  
 Robin, moulting freak of, 4297; and young cuckoo—a case of adoption, 4695  
 Rook, 4295, 4406  
 — pied, 4421  
 Rooks, innocent (?), 4538; gigantic buff-balls pecked by, 4665  
 Rorqual, common, on shore at Hap-pisburgh, on the Norfolk coast, 4418, 4455  
 Royal Aquarium and Winter Garden Society at Westminster, 4301  
 Ruff, 4363, 4631  
 Ruminants, bones of, in Medway Saltings, 4334
- Salmon, large, 4460  
 Sandpiper, common, 4327, 4328  
 — green, at Northrepps, 4697  
 — purple, 4295, 4332

- Saxby, Henry L., M.D. (the late), 'Birds of Shetland,' 4269
- Sea elephants from Kerguelen's Land at Berlin, 4659
- Seal on the Norfolk coast, 4652
- Secretary bird, 4613
- Serpentarius reptilivorous, 4613
- Shark, basking, off Shanklin Chine, Isle of Wight, 4415
- Greenland, off the Suffolk coast, 4424
- spinous, in Mount's Bay, 4501
- Sharks, teeth of, 4344; tenacity of life in, 4460
- Shearwater, greater, large number off the coasts of Devon and Cornwall, 4300
- Sheep, living, bird's nest in the fleece of, 4720
- Shieldrake in the Færoe Islands, 4383; near Ringwood, 4500
- Shrike, great gray, 4334
- lesser gray, 4633, 4691
- redbacked, a butcher, 4691, 4721
- Siskin near Ringwood, 4382; nesting near Durham, 4420
- Skua, pomatorhine, at Instow, 4300; at Flamborough, 4667
- Richardson's, at Formby, Lancashire, 4300
- common, audacity of, 4698
- Skuas off the Coast, 4293
- Slow-worm abroad on the 26th of December, 4343
- Snake in Ireland, 4704
- Snake-eating snake, 4625
- Snakes, 4354, 4389; fruit-eating, 4541, 4574
- Snipe, brown, near Southport, 4341; and moorhen feeding on bread, 4457
- great, 4635
- solitary, in Norfolk, 4665
- Snipes, abundance of, 4366
- Soko hunting, 4358; young, 4360
- Soko or doko of Central and South Africa, 4357
- Sparrowhawk, 4412; and thrush, 4325
- Specimens, Natural-History, value of, 4720
- Squid, gigantic, lately captured off Boffin Island, Connemara, 4569
- Starling, 4488
- Starlings, do they rear more than one brood in a year? 4630
- 'Statistique Scientifique d'Eure et Loire—Lépidoptères,' 4668
- Sterna alba, 4487
- Stilt, plumage of, 4697
- Stint, Temminck's, 4334
- Stoat near Ringwood, 4492
- Stonechat, 4330, 4332
- Sturgeon, large, at Torquay, 4301
- Sun-fish in Fleet Bay, Galloway, 4725; at Overstrand, in Norfolk, *id.*
- large, off the North of Scotland, *id.*
- Surmullet, large, off Penzance, 4668; 4704
- Swallow, chimney, 4403; habits of in the United States, 4624; albino, near Norwich, 4665
- Swallows and martins and fieldfares, 4338
- Sycobius bicolor, 4397
- Sylvia aquatica, supposed occurrence of in Kent, 4693
- Tantalus hagedash, 4356
- Teal, 4328, 4489; nesting in Hampshire, 4457
- Teeth of sharks, 4344
- Telegraphy in India, ornithological and entomological interruptions to, 4336
- "Telescope fishes," 4501
- Textor erythrorhynchus, 4397
- Thinornis Novæ-Zelandiæ, 4485
- 'Third Annual Report of the Board of Managers of the Zoological Society of Philadelphia,' 4586
- Thrush, variety of, 4691; and sparrowhawk, 4325
- Thrush's nest, pied wagtails building on, 4291; curious, 4456
- Trushes, missel, nests of, 4291; missel and common, 4327
- Tichodroma phœnicoptera in Norfolk, 4695
- Tit, blue, food of, 4298
- yellowbreasted, 4478
- Titmice and kestrel, 4326
- Tits, bearded, breeding in confinement, 4693
- blue, nests of, 4291
- Torpedo on the Cornish coast, 4500
- Tortoises, land, the gigantic, of the Mascarene and Galapagos Islands, 4679
- flat-headed type, *id.*
- round-headed type, 4683
- Touracou, 4549
- Treron Delalandi, 4615

- Trogon narina, 4614  
 Tunny on the Somersetshire coast, 4725  
 Turacus musophagus, 4549  
 Turnstone, 4330  
 Turtle dove's nest utilised by a wood pigeon, 4723  
 Turtur capicola, 4616  
 'Twelve Plain and Practical Articles on Marine and Freshwater Aquariums,' 4587  
 Twite, 4293, 4488  
  
 Vaagmaer, or deal-fish, in Ireland, 4313  
 Variety of razorbill, 4382; of black-bird, 4538, 4625, 4691; of sand martin, 4625; of swallow, 4665; of thrush, 4691; of partridge, 4696  
 Vitality, extraordinary, in a partridge, 4299  
 Vulture, griffon, 4613  
 Vultures, 4612; olfactory power of, 4373  
  
 Waders, migratory, 4292; migration of, 4663; in North Lincolnshire, 4670  
 Wagtail, gray, 4331  
 Wagtails, pied, building on a thrush's nest, 4291; our, 4436  
 Warbler, grasshopper, 4329  
 ——— marsh, in Somersetshire, 4713  
 Waterhen, 4709  
 Water-snakes, 4389  
 Water-treader, 4513  
 Wattle-bird, 4479  
 Waxwings without wax, 4723  
 Weaver, redbilled, 4397  
 Weaver, scarlet, 4397  
 ——— solitary, *id.*  
 ——— speckled, 4396  
 Whales, pet, food for, 4572  
 Wheatear, 4489  
 Whistler, 4482  
 White, Rev. Gilbert, unpublished letter of, 4447  
 White-head, 4478  
 Whitethroat's nest twelve feet from ground, 4298  
 Wigeon, 4328  
 Wild-fowl, 4629  
 Woodcock, 4294, 4366, 4369, 4379, 4709  
 Woodpecker, black, food of, 4732  
 ——— great spotted, 4379  
 ——— green, 4331, 4631  
 ——— lesser spotted, 4630  
 ——— whitebacked, a British bird, 4695, 4723  
 Wood pigeon, turtle dove's nest utilised by a, 4723  
 Wren, goldcrested, 4709  
 ——— willow, 4331  
  
 Yellowhammer, 4329, 4406, 4670  
 Yellow-head, 4478  
  
 Zoological Gardens at Cologne and Antwerp, notes on, 4398  
 ——— Station at Naples, 4501  
 Zoological Society of London, proceedings of, 4302, 4315, 4384, 4424, 4460, 4504, 4515, 4578, 4727; additions to the menagerie during April (1875), 4542; during May, 4574; in August, 4706  
 'Zoology,' 4439  
 Zoology of the Thames Valley, 4688

# THE ZOOLOGIST

FOR

1875.

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## Notices of New Books.

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*The Birds of Shetland, with Observations on their Habits, Migration and Occasional Appearance.* By the late HENRY L. SAXBY, M.D., of Balta Sound, Unst. Edited by his Brother, STEPHEN H. SAXBY, M.A., Vicar of East Clevedon, Somerset. Demy 8vo, 398 pp. letterpress, eight tinted litho. plates. Edinburgh: Maclachlan and Stewart. London: Simpkin, Marshall and Co. 1874.

### (THIRD AND CONCLUDING NOTICE.)

A FEW particulars of a church-going swan are so much to my mind that I cannot forbear quoting them, although I greatly fear they will be considered trifling by my more erudite correspondents. It is impossible to meet every taste, for while *one* revels in the changing of scientific names and devoutly believes himself a philosopher, *another* is equally attached to the Gilbert-White phase of Natural History, and delights in reading of living birds and of what they do and how they behave themselves, entirely careless of their scientific appellations. The 'Zoologist' has committed itself to this latter school, and therefore swan-biography is permissible. How the swan came to possess a taste for theology and the innumerable heads into which a sound Scotch divine will occasionally divide his sermon, I cannot say, and will not attempt to discover: I give the story as I receive it.

A fisherman one morning, on emerging from his dormitory in the island of Yell, and looking out to sea, as was his custom,

observed three swans feeding in a shallow burn that emptied itself into the sea just before him. One of the three, of a more inquiring turn of mind than the others, leisurely walked into a short covered drain which conducted the waters of the burn beneath a road that passed between the fisherman's residence and the sea. "Oh, ho!" cries the fisherman, "here's a chance!" so he ran to one end of the drain and stationed his boy at the other end, and between them the swan was made a captive. Its wings were forthwith clipped, and it was shut up in the byre: for three days it sulked and refused all sustenance excepting cold water; on the fourth it partook of a more solid refection, and from that time there was no difficulty in getting it to feed.

"In about a fortnight it had become so tame that it was allowed to wander within the enclosure; and soon afterwards, it having become very gentle and familiar, no further restraint appeared necessary, and it was permitted to go where it pleased. It associated freely with the tame geese, but the two species never agreed well, and the swan was often seen with lowered bill and waving wings in full pursuit of some offending member of the flock. It spent a great deal of its time floating upon the sea or wandering up the burns, but never more would it venture into the drain which had been the scene of its capture. What it fed upon at these times was never ascertained, but it was very fond of grain, boiled potatoes, cabbage or turnips; yet to all these it preferred oatmeal-porridge, especially when, in times of plenty, a little whey or butter-milk could be also spared. It was extremely cleanly in its habits, nearly always going down to the sea or to the burn after a meal, and there spending a considerable time in swimming and washing its plumage. After awhile it learnt to understand and to wait for its call to food, to which it would hurry with eagerness; but it refused to respond for several weeks after having once been disappointed. It was remarkably attached to one of the elder boys, by whom it was treated with more than ordinary kindness, but who, poor fellow, doubtless thought that a friendship might occasionally prove too warm, when, on entering the kirk rather behind time one Sunday, he was horrified on making the discovery that his favourite had followed him to his seat.

"Among the bird's few antipathies, the chief one was its dislike to bare feet, whether upon man, woman, or child, and upon such it would occasionally make serious attacks with its bill. Its own feet, it may here be observed, were not disfigured by any of the marks previously referred to, thus inducing the conclusion that it had not escaped from confinement. It also greatly disliked the colour of scarlet. This, however, was attributable to the fact that, soon after its capture, a woman wishing to remove it from

its corner, flung a scarlet petticoat over it, and while thus bewildered and entangled it was carried away."—P. 232.

The lesser swan (*Cygnus minor*) is occasionally seen in Shetland in company with the hooper, and we are told that its flesh is superior in flavour; but the bird is not such a favourite with the Shetlanders, who, rarely having the chance of a meal of fresh meat, naturally prefer quantity to quality; so the larger bird is preferred to the less. In all the specimens Dr. Saxby obtained, "the tarsi and feet were tinged with olive-brown," a character that has escaped our systematic naturalists, probably from their want of acquaintance with recent specimens.

The shieldrake, although breeding abundantly in Orkney, is all but unknown in these islands. This seems extraordinary, as the extensive "rabbit-links," in which it delights, are so abundant. Three specimens only have been recorded as occurring in Shetland.

The pintail duck seems the harbinger of storm: so deep is Dr. Saxby's conviction on this head that the pintail was always associated in his imagination with storms of driving sleet and snow, "and the surface of a loch torn into spray." Once, and once only, he had an opportunity of observing this species in fair weather, and that was on a Sunday evening in the middle of May. He concealed himself among the willows at Halligarth, and enjoyed the spectacle to his heart's content; the birds landed from the loch on the coarse grass which surrounded it, and after a time spent in preening their feathers, commenced an attack on the winged insects which they disturbed. "The easy and even graceful manner in which they effected their repeated captures was to me very surprising; they ran straightforward, rapidly and lightly, giving one quite a new idea of a duck ashore."

The eider duck was always a favourite of mine. To us southerners it is a *rara avis*, for seldom indeed does the sight of a wild bird gladden our eyes: true that it breeds on the Farn Islands; true also that Mr. Selby tells us that it is not protected, and, with the genuine feelings of a landowner, laments that its eggs should be taken indiscriminately with those of gulls and guillemots and sold for a mere trifle to the inhabitants of the mainland. This desecration, however, is not now so common as formerly, and the eider seems likely to maintain a footing, or more properly

a sitting, on the Farn Islands for years to come. In Shetland also, if not increasing, it is certainly not diminishing in numbers, at least not in the "North Isles,"—a term frequently employed by Dr. Saxby as the "collected designation of Yell, Unst and Fetlar, as distinguished from the Mainland." In the breeding season the numerous males swimming about the shores of the little islets give assurance that the females are engaged in the domestic duty of incubating, and that the species is safe for years to come. These little isles, when flat and well covered with rank herbage, are their favourite breeding-places, but Dr. Saxby says—

"I have also seen nests on the hills several hundred feet above the sea-level, but always near water. In the latter case the young are not taken to the sea immediately after they are hatched, but are allowed time to gather some strength previously. This scarcely bears out the idea that the mother carries them to the water one by one in her beak, as some assert, a fact which I have always doubted, never having heard any other than untrustworthy persons affirm that they had actually seen the performance. Indeed, any one who is acquainted with the habits of the blackbacked and herring gulls will readily agree that the eider duck is far too wise to leave first the birds in the nest and then those in the water alternately to their tender mercies, unconsciously illustrating the celebrated fable of the fox, the goose and the basket of corn. Even when the young brood are directly under the eye of the mother, the gulls are always upon the watch, endeavouring by their cries and threatening gestures to compel them to separate, yet too cowardly to approach their equally watchful guardian, who, with ruffled feathers, open beak and repeated angry rushes through the water, in truth contrives to give herself a very formidable appearance."—P. 249.

The beautiful longtailed duck is, with the single exception of the common wild duck, the most common of all the duck tribe that visit Shetland. It arrives in September or October, and remains throughout the winter in all parts of the coast, but in some seasons is exceptionally scarce,—a phenomenon which Dr. Saxby explains, rationally enough, by suggesting that the high-bred and delicate "calloos" dislike to associate with the low-lived and fetid shags. Whether the fact is so, whether the antipathy to such company really exists, this deponent sayeth not: it is a pleasant fancy to believe in its existence. "The scarcity of these ducks in certain winters used to puzzle me greatly until the fishermen explained the reason, which I afterwards proved to be correct. It appears that, with a very proper feeling readily to be understood

by those who know the two birds, the ducks never like to associate with the shag or green cormorant, and indeed entertain a strong antipathy to it; so that when sillacks, the young of the coal-fish (*Merlangus carbonarius*) chance to be unusually abundant in the voes, the shags assembling in great numbers completely scare away the ducks."

Dr. Saxby's accounts of the feeding and breeding habits of the merganser are such as will rescue Natural History, for a time at least, from the charge that it is a science of words and not of facts; and great is the amount of our indebtedness to him, and men like him who have now and then tried to exhibit the combined faculties of knowing "how to observe" and "how to record." The sight of male mergansers basking on isolated rocks and slumbering in the sunshine while their mates are on the nest, quietly engaged in the maternal duty of incubation, is one that few of us southerners can hope to enjoy: nevertheless the bird is not unknown to us, for Mr. Yarrell tells us that in Kent they are called "sawbills," an evidence that they must at least be familiar to those who use so descriptive a name. It has not been my good fortune to make their acquaintance in the open, but although this has never happened, and in all probability never will happen, no one can deprive me of the intense pleasure of reading such passages as these, and of feeling them to be as truthful as they are enjoyable.

"When mergansers are feeding in water too shallow for diving they are not very easily distinguished at a distance, owing to their habit of keeping the head almost constantly submerged, leaving nothing in sight but the back—a mark altogether inconspicuous among the numerous small seaweed-covered rocks just rising above the surface. I have seen one swimming round the rocks, with its head and neck under water, searching for fish among the weeds, and on its discovering a fish at a depth, it has dived instantly, without previously raising the head to take breath: after swallowing a fish, which is always first brought to the surface, the bird raises the fore part of its body, flaps its wings, and then takes a drink of salt water, raising its bill like a common fowl. In deep water the merganser will remain below sufficiently long to enable a boat to sail up within shot, but it is very seldom that such a chance occurs, one bird or more being constantly in sight: not that I have any faith whatever in the popular belief as to a regular system of watching being kept up, each individual in turn acting as sentry. The fact is that most of the flock dive and rise almost simultaneously, but as soon as one catches a fish it takes it to the surface, and either by delaying to swallow it, or by finishing the process rapidly and diving again

before the re-appearance of the flock, thus gives rise to confusion. The student of sea-birds in their native haunts will soon find that almost every species which is much given to diving has its characteristic way of taking the plunge. One bird, a razorbill for example, will give you the impression that it has been suddenly turned topsy-turvy and pulled straight down. Another, as the black guillemot, will make a sudden splash with its wings as it disappears. The merganser dives by raising the body and plunging head foremost, and at a distance may readily be distinguished from the shag, which dives in the same manner, by its far more graceful movement—not to say by the snake-like neck and long narrow head.

When watching the merganser diving I have observed that it invariably uses its wings as well as its feet; sometimes it descends quite to the bottom, stirring the weeds with its bill and darting with astonishing speed after any small fish which may chance to show itself. In rising to the surface its own buoyancy is quite sufficient; yet I have occasionally seen it give additional impetus to its ascent by means of its wings. The latter are always used when it is in mid-water examining the rocks, and in that case the hind part of the body is always the highest. I have seen the bird in this position, just as in surface swimming, as above mentioned, suddenly dart to the bottom and seize a fish, the act being followed, as usual, by immediate ascent to the surface."—P. 267.

So much for the feeding; now for the nesting, which, if not entirely new, has at least the merit of adding greatly to our previous knowledge, as recorded by Selby, Jardine, John Macgillivray, and Hewitson, all of them observers after my own heart:—

"The merganser often makes its nest among long grass; but it seems to prefer something in the form of a roof; and thus it is that in suitable localities the eggs are most commonly found under the rocks, in rabbit-burrows, and even in a crevice at the foundation of an old loose wall. Whatever be the situation chosen, the nest almost always consists of a hollow scraped in the ground, lined to a greater or less extent with down, feathers, dead plants, and with heather also, if there happen to be any growing near, the amount of material usually being increased as incubation proceeds. Now and then it happens that no attempt is made to line the nest until the first few eggs have been deposited. I once found a nest—it was about five feet above the beach, among tangled masses of dead grass and coarse herbage. Sometimes, though rarely, the selected spot is beside a small hill loch in a sheltered depression where the heather is long; but a very favourite situation is a hollow at the foot of a dry bank where the long grass overhangs and the tall flags grow close up. The number of eggs is from five to eight, but I have several times seen as many as ten. The rich reddish cream-colour of the

eggs is strongly tinged with green in some specimens, and these I have seen offered for sale as eggs of the goosander."—P. 269.

From the graphic account of the great northern diver, I make two very short extracts; the first rather anecdotal, but illustrating its great strength when submerged; the second illustrating its powers of flight. We have yet to learn the *rationale* of aerial progression in the auks and divers, and although I have spent time and attention galore on the guillemots at the Zoo, I am totally unable to explain how they fly when they *do* fly, and why they don't fly when left at perfect liberty to do so with unmutated wings; but I shall have a few more words to say on the elligog anon, and on the cormorant too.

"A gentleman of my acquaintance having wounded a diver, arranged with his lad to get it alive into the boat, and then by means of a piece of stout line they made it fast by one leg to the stem and tossed it overboard. The poor bird instantly dived, and for many minutes steadily towed the boat seawards, remaining entirely submerged the whole time, except when it rose for a few seconds to breathe. During this extraordinary performance it made use of the wings as well as of the feet—of course being able to use only one of the latter freely. The boat was thirteen feet in the keel, but light for its size, being, like all those used in Shetland, built of Norway pine."—P. 279.

The second passage is this:—

"It [the great northern diver] has been seen upon wing at all seasons, but so far as I have observed very rarely at any other than spring. It then often flies to a great height, circling over land and water in an undecided sort of manner, at intervals uttering loud hoarse screams. At such times it may easily be known by its long thick neck and by its short rapidly-beating wings. Indeed one cannot but feel surprised at the doubts which still exist in some quarters as to its power of flight. The wings being small and placed far back certainly give it a rather ungainly appearance in the air, but for all that the bird is able to fly vigorously and with considerable velocity. I have seen it on the wing in November flying up the voe at Balta Sound."—P. 278.

I have now reached the elligog, longie, or guillemot, the lomvia of the Danes, the langivie of the Faroese. This bird was the first sea-bird to which I was introduced, and well do I recollect the introduction: the ceremony took place under the cliffs at Fresh-water between three and four o'clock on a May morning, but when

May was just about merging into June: there had been wind for days previously, but it had now fallen, and was succeeded by that long swell which is a sore affliction to landsmen unaccustomed to the sea. The arguments of this rolling swell, soft and elastic as a spring mattress, were irresistible, but in defiance of our sea-sickness we could not but admire the thousands of birds—guillemots, razorbills, and puffins—ranged in rows on every ledge of rock, and all singing their morning hymn; but it is an oft-told tale, and I must return to Dr. Saxby. The fishermen tell you these birds cannot fly *over land*, and I am yet unable to understand how they fly *over water*; the wings seem utterly inadequate to the task; and as the birds skim over the surface of the sea in little parties of ten or twenty, the incessant vibrations of the wings resemble those of a bee or a fly rather than of a heavy-bodied bird requiring powerful and incessant muscular exertion to bid defiance to the laws of gravity, even under the most favorable conditions of atmospheric peace. That very many fall a sacrifice to their inability to resist the storm is proved by the numbers often found dead along the shores, thus giving rise to the idea of an epidemic having raged among them, causing the miserable condition of the birds and the absence of food in their stomachs. When you handle the bird, living or dead, and examine it with the inquiring eye of a truth-seeker, you feel the inadequacy of those little wings to support such a body against the power of the winds and waves, and yet it is evident that the guillemot by natural increase retains its place in the system, notwithstanding its wholesale destruction by the boisterous elements amongst which it resides. Concerning the method in which the juvenile guillemot uses its hinder extremities, Dr. Saxby informs us that—"In running as well as in standing they rest upon the toes, seldom upon the tarsi; but as they attain their full growth the opposite is the case, their bodies having then probably become proportionably heavier. When a full-grown bird is caught and placed upon the floor, it lies upon the full length of the breast and endeavours to swim, making such severe exertions that if not removed it very soon injures both wings and feet."—P. 287. Since I published a brief note on the subject I have again watched the birds carefully at the Zoo, and find there is every reason to believe a hasty opinion is likely to be erroneous, for as I watched one for a few seconds standing on its feet it suddenly retreated to the tarsal position, as though wearied of having maintained, even

for so short a time, the ordinary standing position of the feathered tribes. Turning then to the Gentoo penguin (*Pygosceles taniatus*), which was so nearly being lost off Southampton through the folly of its custodians, as already recorded (S. S. 4243), I felt satisfied that here at least we have a sea-bird walking, after the most approved book fashion, on its tarsi, and waddling along with the most uncouth gait, and helplessly dangling its flapper-like wings, when suddenly it fell prostrate on its belly, and after a very brief interval began to make similar exertions to those so graphically described by Dr. Saxby.

On the subject of egg-collecting we have some very sound advice. It is an occupation far more dangerous than that of gathering samphire, which has acquired such a world-wide celebrity. The Shetlanders, who are celebrated cragsmen, pride themselves on the danger of their calling, and it is not many years since that it was thought as glorious to die on the "banks," as the cliffs are denominated, as in slaying the Chinese, Ashantees, or other defenceless inhabitants that fall in our way. In the remote islands of Foula and Papa Stour death on the banks when seeking for guillemots' eggs was the most honourable a man could die. "When two people were quarrelling the crowning reproach of all sometimes took the form of the remark, 'Aye, but my father died like a man—on the banks; your's died like a dog—in his bed.'" But the advice to amateur cragsmen, and such among the enterprising race of Britons there always will be, is to abstain from spirits when on the "banks," and not only spirits, but from tobacco also, the very merits of which narcotic become suicidal weapons when enjoyed in such dangerous localities.

"After all that has been written upon the subject, it is almost needless to remark that to obtain the eggs for one's self requires a good head as well as some little experience in climbing, but I here would most strongly protest against the dangerous plan of using spirits 'to steady the nerves.' When the climbing is over, by all means allow the adventurer to sit down by the nearest burn, enjoy his biscuits or his sandwiches, and empty his flask, if it suit his inclination; but when among the guillemots, with the sun beating down upon him, and in the midst of a stench almost unbearable, and perhaps with the monotonous swell of the sea below causing a third rather uncomfortable sensation, a slight feeling of giddiness is not unusual; and if the descent have been prefaced by even a very moderate dram, the result may prove very alarming, if not fatal. Young beginners in the art of

smoking may also bear in mind that I have seen one such beginner so completely narcotised as to have suggested the thought of leaving him in a secure place, while men were sent for to haul him up the cliffs with ropes. The folk who write about fowling can seldom resist a little platitudinising as to 'but a moment's giddiness—but one false step'—which would precipitate the adventurer headlong into the boiling depths below, &c.; but if they would vary the tune a little, and say 'But one small dram—but one single pipe of cavendish,' they might do some good."—P. 288.

I could dwell for months on this subject of crag hunting: every minute Dr. Saxby turns a new page, and every page resuscitates illustrations, recollections, records, that I thought lost in the lapse of time. From the single egg to the single chick of the guillemot the transition seems natural, only the consequence of a parent's warmth; but other questions are opened up by the chipping of the egg-shell, by the introduction to life of this new being which is to become a fellow inhabitant with its parents of rock and sea. What is its first venture in life, or rather adventure? does it mount on its mother's back like Ganymede on the eagle's? Waterton thought so, and Mr. Gray evidently inclines to this opinion ('Birds of the West of Scotland,' p. 421). But let us see what Dr. Saxby says: he seems disinclined to make even a guess.

"With regard to the young birds themselves, ornithologists are still unable to decide how it is that while some of the young remain upon the rocks, others, not many days old, are to be seen swimming in the surrounding waters. Some of the people unhesitatingly assert that they have seen the parents take them upon their backs, and some that they are carried down to the water by the neck; but none of the men whose word can be relied upon would venture to commit themselves to such statements. Macgillivray, who was usually very careful in the collection of his evidence, quotes the words of one of his correspondents who asserts that the guillemots 'convey their young to the water by seizing them by the skin of the back of the neck, as a cat does a kitten,' but he overlooked the fact that his informant merely wrote from old tradition, and, as I have ascertained in conversation, had never witnessed the act himself."—P. 290.

It was to be expected that Dr. Saxby would take great interest in the identity or otherwise of the common and ringed guillemots (*Uria Troile* and *U. lachrymans*), and it is evident that he has done so. His quotations are exactly to the point, but he seems very reluctant to express any decided opinion of his own. It is the perfection of

human wisdom to adduce all the evidence within reach, but to leave the verdict in the hands of that impartial jury, the working ornithologists. It will be seen that in this instance the evidence of identity is not half as strong as in the case of the two crows. In both instances the two supposed races are said to pair together, but in the crows this fact is clearly established by the presence of both species (?) in the same clutch; it has not been so proved in the guillemots. I incline to consider it an additional instance of that dimorphism the discovery of which seems likely to set at rest so many questions of specific limit. It will doubtless be observed that the bulk of the evidence placed on record is negative, and therefore inconclusive.

“In its times of arrival and departure, and in its winter habits it [the ringed guillemot] precisely resembles the common guillemot. My remarks upon the plumage and the colouring of the bare parts in the one apply also with equal truth to the other. Both vary considerably in size, but I think upon the whole that the ringed guillemot is the smaller of the two. Mr. J. H. Gurney, jun., records the capture of a remarkably small specimen at Bridlington (Zool. 1869, p. 1864). At various times, but mostly near the breeding season, I have seen couples and single birds along the coast, the couples obtained consisting of a male and female, but I have never seen a ringed and a plain bird together except in flocks, neither have I found the two of a couple to be of one sex. At present these facts are of little value, and before they can be practically applied the assistance of other resident observers will be required. From the latest accounts it appears that the two kinds even pair together; but one source of error must be kept in view, namely, that the same thing occurs among many species of birds, and with fertile result, though not always. In the case of the guillemots, who is able to declare that his observation of the pair has ever extended further than the act of pairing? One point at least I think I have settled, *viz.*, that although (among adults?) the white marks in question may possibly be peculiar to very old birds, they occur in the young bird in its first plumage. After a vast amount of persuasion, watching, and feeding, I at last induced some of the people to keep both birds, giving them liberal supplies of fish and full liberty to run about the cottages. Young birds were of course selected, but none lived as long as I could have wished; the last of the ringed birds living to the end of the fifth year, and the last common one only surviving it a few months. There was neither disappearance of the marks in the one case nor assumption of them in the other. Thus were much time and trouble wasted; for as Mr. Wolley observed (Zool. 1852, p. 3479), when proposing a trial of the experiment, ‘If the ringed changed to common birds, or *vice versá*, I suppose every one would be satisfied on the fact being

properly attested; but if they did not change unfortunately nothing would be proved.' The series of eggs which I had collected from under the ringed birds I considered a great point gained, for though most of the birds were sitting side by side with the common ones I was then unaware that each does not invariably return to its own egg, though it is very seldom that the mistake is committed. Since that time I have always collected them from those little visited, because comparatively unproductive, spots, where two or three ringed birds built, not always alone, but occasionally with a scattered few common ones close by. I procured the first egg year after year, always leaving those of the second laying, and can assert positively that each description of bird returns to the same spot annually. The eggs are for the most part undistinguishable from those of the common guillemot, and I have specimens fully coloured, taken from recently-killed females; but with the exception of having discarded my former belief, that the egg was peculiar in size and shape, I cannot but adhere to my old opinion (Zool. 1861, p. 9242), 'that generally in the eggs of *U. lachrymans* the blotches are larger, the ground-colour is clearer, there are fewer under tints, and the markings are better defined and less prone to take the form of streaks.' It may be scarcely necessary to remark that both birds occasionally lay white eggs. Mr. Harting mentions ('Handbook of British Birds,' p. 74) that in the Hebrides Mr. Harvie Brown has seen a ringed guillemot feeding a young bird which was under the wing of a common guillemot. This again but throws an equal weight into either side of the scale, for it may be asked, 'Is it certain that the parent which cannot recognise its own egg is incapable of making a similar error as regards its own young?' The proportion of the number of ringed to common birds in Shetland has not yet been correctly ascertained. Very few of the summer battues have been attended by me, and it is impossible to obtain correct information from a number of excited shooters on their return. The fowlers consider the 'longie with the white eye' to be less abundant than the common species, and with regard to the eggs they say they are 'bonnier,' meaning that they are more distinctly marked and the blotches are larger. All this precisely agrees with my own experience."—P. 294.

This interesting enquiry might be well left here, for it will certainly long wait solution: those who know most hesitate most to express any very decided views; those who know less, the skin-and-bone ornithologists of John Macgillivray, are more confident and more dogmatic—I suppose on the old acknowledged principle that

"Fools rush in where angels fear to tread."

The accomplished editor of the 'Birds of Shetland' appends an important remark of his own, equally valuable as a matter of fact

and as having a decided bearing on the question under consideration: he says that his brother's journals fail to show the smallest evidence of his ever having observed a specimen that could not at once be referred to its type. The differences are always decidedly marked, the ring and bridle being unmistakably manifest or absent altogether. This again is very decidedly the case in the two crows; there is no race of half-breeds.

On one occasion Dr. Saxby tells us that he saw the black guillemot flying under water, which, from my frequent watching of aquatic birds at the Zoo, I believe to be no uncommon occurrence, although so seldom noted. "The only opportunity I ever enjoyed of seeing black guillemots travelling under water at what may be supposed their full speed, occurred one afternoon in February. I was standing upon a rock near the foot of a low cliff, upon the other side of which repeated firing could be heard, when systies, conspicuous in their gray winter plumage, came sweeping round the point, literally flying under water, seemingly intending to take refuge in the little bay; but having observed an unavoidable movement on my part, with one accord they rose and flew rapidly away." In connection with the subject of subaqueous flight, I may quote Dr. Saxby's remark that he observed the wings of the little auk were "partly opened at the instant of making the plunge."

An account of a visit to Hermaness, although rather long, is too good to be omitted, bringing us face to face with the puffin, just as we see the rabbits represented in Mr. Yarrell's vignette. This bird is the most regular of all our migrants, arriving on the 1st of April and departing on the 23rd of August. These are the dates given by Thomas Edmondston as regards Shetland, and Dr. Saxby pronounces them correct: nevertheless there is no doubt some slight diversity in date at different points of our coast; were it not so it would be the most marvellous instance of regularity that the migrations of the Animal World has yet revealed to us. I cannot forget, moreover, how many examples of puffins I have received in winter, differing, it is true, in plumage and in beak, but manifest puffins nevertheless, although receiving the distinctive name of "winter puffin," and although giving rise to many speculations as to the identity of the species. The very excusable ambition to give this winter puffin a new name, and thus add another synonym, —it is all that species-makers can accomplish,—receives no support from Dr. Saxby's researches, and must remain for the present

ungratified; leaving this singular bird in abeyance, and allowing it full liberty to make seasonal changes in the size, shape and colour of its beak, we will accompany Dr. Saxby to its breeding station, and that of the guillemot, in the far, far north. Whence it comes in the spring, and whither it goes in the autumn, are questions that may yet form much matter for speculation and research.

“My first opportunity of forming intimate acquaintance with the nesting habits was gained in the course of a memorable day's scramble among the cliffs at Hermaness, in company with one of the best of the professed cragsmen of Shetland, one fine day in June, 1861. To get well up to the slopes on which the puffins were breeding it was necessary to make a long circuit, passing the guillemot ranges; and very sufficiently did my heart misgive me, on looking at these latter from the brow of the cliff, but my guide assured me that if I had head enough he would take me by a ‘road’ which a child might travel. Accordingly, after going several hundred yards along the edge, we began the descent. The smooth short grass rendered our footing somewhat insecure, but with a little care the difficulty was overcome, and a few minutes brought us to a rough uneven steep covered with large stones, from beside one of which rose a lesser blackbacked gull from three eggs. Presently after passing the slope I received a wrinkle as to the so-called ‘road.’ My companion walked to the edge of a large mass of rock on which we were standing, told me to wait until he was ready to help me, let himself over the rock, and then, hanging by his arms, dropped down for several feet. There was nothing for it but to put on my boots, which until now had been carried on my back, and to follow his example, landing safely upon a sort of narrow platform, though it must be owned I should not have been much inclined to try it had there not been a pair of stout arms ready to catch me in case of a slip. However, thus fairly in for it, I once more removed my boots, and followed my companion, in whose safety it need not be said, I now took a most lively interest. The climbing was far from easy, but still on we went, now up, now down, sometimes passing herring gull's eggs, sometimes lesser blackbacks' and once discovered a nest of young rock pipits, evidently hatched about a week. Suddenly a well-known scent—none of the sweetest, by the way—made known that the guillemots were at hand, and in a few minutes we were in the very thick of them. They sat in rows, eight or ten together, sometimes a score or more, some upon their solitary egg, others upon none at all, but most of them so tame that we could have knocked them down with a long stick. The ledges upon which they were sitting were so whitened that scarcely an inch of the rock itself was visible, and the footing was occasionally rendered somewhat precarious by the same cause, the rock being so slippery. We found the ringed guillemot as well as the common species, and took especial pains to keep the eggs of the two

separate. After some time spent among the guillemots, we gained a grassy platform a little farther down, where there was a small stream of water, and here we got our lunch, and I blew and packed the eggs at leisure, processes which kept me employed fully a couple of hours, with the most glorious prospect spread out beneath. Just as one was beginning to let the mind drift away into dreamland, in so strangely wild and picturesque a scene, my worthy guide, who had been absent for some time, reappeared with his shirt full of eggs, putting a summary stop to meditation. The poor fellow almost keeps his family on eggs during the summer, therefore I could not blame him: besides—though to be sure I seldom, if it can possibly be avoided, take all the eggs of one nest—conscience made it needful to admit that one was coming home pretty well laden oneself. After this we ascended to the puffins' holes in the cliffs above, and here was the most ticklish climbing of all, on account of the rottenness of the earth and stones, which crumbled away as they were touched, but for all that we contrived to procure as many eggs as we wanted. Some of the holes were not more than eighteen inches in depth, others so deep that the eggs were beyond our reach, and others again winding upwards or downwards to the right or to the left. In some instances there were two entrances to one nest, but this seems only to be the case where the face of the cliff being irregular a new burrow happens to strike the course of an old one. Occasionally the eggs were deposited upon grass or down or feathers, but not a few were upon bare earth. They were, as usual, dull white, with very faint spots of gray or brown; but several were so stained by the damp earth as to be quite of a rusty colour. Rabbits were tolerably abundant in the cliffs, therefore I had no cause to doubt my companion's assertions that puffins will often seize upon the burrows of these animals; but for the most part the holes were dug by the birds themselves—a work, by the way, I have seen both sexes engaged in. Before introducing my hand into the holes I took the precaution of putting on a couple of thick Shetland gloves one above the other, and thus it mattered but little that the birds held on with their bills as fast as they liked. I have been told that the puffin cannot bite so severely as has been supposed; perhaps not, but I should not like to try. Before we left the cliffs I learned how it was we had not descended first of all by this route. Just in our way was a rock jutting out in such a manner that we had to climb over it with our backs projecting seaward rather beyond our feet, not at all difficult in ascending, owing to the excellent grasp afforded by the rough surface of the crag, but scarcely possible of descent when one's legs were swinging loose in the air and one cannot see where to get a footing. Surmounting this we were soon at the end of the heathery summit among the nests of the arctic skua, and worked our way home, lighting upon nests of the mountain linnet and the wheatear, by way of contrast, to finish with."—P. 309.

The domestication of the cormorant has long been a matter of history: the Chinese fishermen enjoy the reputation of being the first to employ this familiar bird in piscatorial duties: Montagu records lovingly (p. 32) its amiable disposition, and Mr. Salvin, in our own day, has revived this mode of fishing in the meadows of Surrey. Those who have seen the cormorants fed at the Zoo will bear willing testimony to their capabilities. Still, notwithstanding the prowess of the cormorant has become somewhat of a thrice-told tale, Dr. Saxby has found something new to tell us respecting him—something one cannot read without pleasure and instruction. There are certainly some disagreeable characters to be discovered in the cormorant, but these disappear, or are greatly modified on better acquaintance. It is true the smell of their breeding-stations is anything but satisfactory, and certain inevitable concomitants of skinning these birds for preservation are decidedly objectionable, but when one is really acquainted with cormorants under happier auspices, as Montagu, Salvin and Saxby have been, we shall find much in their character to respect and admire.

“Some years ago a very young male was taken from one of the North Skerries and brought to Halligarth, where he soon became a most interesting pet. At first he required careful feeding, for it was some weeks before he became aware that opening his bill was the necessary preliminary to every meal. He would appear eager for food, and, uttering the usual peculiar cry, would strike at whatever was offered him, but with his bill closed, and in this manner he would have starved but for human aid. Afterwards he caused but little trouble, for when the ducks were fed he would rush boldly in among them, and appropriate anything in the shape of fish or flesh that happened to suit his fancy, but he would never eat salted food. Sometimes also when he saw a boy coming to the house with fish he would waylay him, and if no contributions were then offered he would speedily settle the matter by helping himself. One day, when food was scarce and he had been fasting for many hours, I happened to pass by, carrying a number of starlings, one of which I tossed at him, but scarcely with the expectation that it would be accepted. However, he caught it cleverly before it could reach the ground, and the next instant it disappeared down his capacious throat. Another followed, and was treated in the same way; then more, until no less than five had been disposed of. This number seemed to satisfy him, and the whole neck being now enormously distended, it was with difficulty that he waddled away to his favourite corner of the coal-shed, where I left him sitting, face to the wall, upon a lump of coal, the legs of the last starling still projecting from the corner of his mouth. After this a bird was always

a favourite morsel, and he would follow me for a long distance when I happened to be carrying a gun. Once I gave him, for a single meal, two buntings, a twite, a sparrow, two snow buntings, and a ringed plover, and even then he followed me for more. Birds, fish and mice were always swallowed head foremost. During the first two years he kept almost entirely to the ground, only occasionally sitting upon a stone or low wall; but afterwards the roof of the house was preferred, from which elevated position he used suddenly to pounce down either to rob a fish-basket or to scatter a company of feeding ducks. But this was merely as a diversion, not as a necessity, for from the time of his first taking up his position on the roof he also began regularly to procure his own meals, flying to the voe for that purpose, and, after remaining there for an hour or two, returning to his former station by the chimney. He never showed any desire to escape, but, on the contrary, he became more and more attached to his human friends. Strangers who attempted to handle him ran the risk of becoming acquainted with the sharpness of his mandibles, and of being scared by the unearthly croaking which always accompanied the bite. Being one of his especial friends, I was permitted to stroke and handle him with impunity, and he would even fly several hundred yards to meet me when I called him. The kitchen fire was his great delight, and he would bask near it for hours, but at such times it was imprudent to leave either fish or flesh within his reach: once he carried off a newly-skinned rabbit, and at another time he attacked a living duck, and even succeeded in swallowing the head and part of the neck before a rescue could be effected. He would sometimes extend his explorations beyond the kitchen, wandering through the passages as calmly as if the house were his own, but always betraying himself by the loud flap of his great webbed feet upon the flags. For about the first year of his life the iris of the eye was of a brownish colour, then it became pale bluish green, and towards the end of the second twelvemonths bright emerald-green. During the third year he rapidly acquired his adult plumage; but just as this was approaching to perfection he was unfortunately killed by an old half-blind dog, which in former days had been celebrated for its address in seizing and killing wounded cormorants."—P. 318.

I have long known and maintained that the gull tribe were friends of the farmer, following the plough and feasting on the upturned larvæ of moths, elaters and chaffers, and on worms and mice wherever they have been abundant; and most devoutly do I wish that farmers throughout our country, with the evidence of this before their eyes, would entertain just sentiments towards all their feathered benefactors, or at least learn to understand their various doings, whether for good or ill. I am perfectly aware there are some who do so, some who combine the naturalist with the

cultivator, and can tell far better than I whether the owl, the kestrel, the rook, the starling, or the gull do them more good or harm; but such men, at least so it seems to me, too often neglect the duty of educating their less-instructed countrymen. It is of little use for me, writing, as I have been told, in a garret, to appeal to the cultivator of the soil who is always on the spot, always in the open, always beholding the objects I describe; he would only laugh at such impertinence; but such men as Mr. Cordeaux or Mr. Reeks might obtain attention if they would sow their knowledge broadcast over the land. The common herring gull is an invaluable servant of the farmer, wherever his farm borders on the sea, but even he may exceed the limits of faithful service, and take that to which he is not welcome, as Dr. Saxby has shown us:—

“Their visits to the fields are, however, not always for the benefit of the cultivator, much good though they may do in the winter and early spring by destroying the worms, grubs, &c., turned up by the plough; for a casual scarcity of fish will cause them to resort to the turnips, where they will in a short time do the most serious mischief. I have known a large field of turnips half destroyed by them, the roots being scooped quite hollow. They seem to dislike the outer portion, interfering with it as little as possible, and only removing enough to enable them to reach the softer parts within. Sometimes a gull may be seen with its head completely hidden inside a turnip, but, as if conscious of its danger, constantly withdrawing it, and casting a glance all round, to guard against a surprise. It must be owned also that they take a heavy fee for the service they render in following the plough, for they return to the field when it is newly sown, and pick up every grain of oats or barley left uncovered by the soil.”—P. 341.

The predatory propensities of the greater blackback are very unfamiliar to many of my readers, and therefore an extract may serve to place this matter in its true light. This bird is well known as an insatiable devourer of carrion, in this respect rivalling the eagle, or perhaps even the vulture of other climes: it is said in Shetland to be the only sea-bird that will “touch the human;” but no evidence that it will do so has, to my knowledge, ever been adduced. Dr. Saxby has seen it swoop down upon a shag for a share of the fish that was about to be swallowed, and has also seen it devour a young cormorant; but the following very circumstantial account of its feats is, I think, more interesting:—

“I have repeatedly known it pounce upon birds in trouble. For example, one November day, as I was lying concealed behind some rocks waiting for

a wounded goldeneye which had alighted in the water, and was letting itself drift with the tide, three great blackbacks came sailing over, and, to my great surprise, one of them made a sudden stoop at the wounded bird. The duck tried to dive, but was unable, and the gull instantly seized it by the back part of the neck, rose with it a few feet, and let it fall again into the water. Another of the gulls then repeated the same process twice, and when the unfortunate duck lay motionless upon the water, apparently dead, all three took to charging it with their bills, tearing out the feathers at each stroke, and paying not the smallest attention to my shouts, only going off when I fired a barrel in their direction to scare them away. On another occasion, at the Flugga Lighthouse, a storm petrel which had been but slightly injured by flying against the lantern, and had been kept alive for some days, managed to make its escape. As it descended towards the sea, a great blackbacked gull dashed forward, and seizing the poor little thing in its bill, disappeared with it in the cliff beneath."—P. 346.

Hermaness, the scene of that memorable crag climbing for puffin's eggs, is also that of finding the eggs of the "bonxie" or great skua. Who does not recollect the "bonxie" painted by Hook in last year's exhibition, and the sea clothed in colours that will bear comparison with nothing but its own? Such an artist as Hook should accompany such a naturalist as Saxby in all his wanderings; and such a painter should always be at hand to preserve and photograph in colour the wild and beautiful scenery amongst which the naturalist makes his observations: such a happy combination of talent is rarely, perhaps never, to be attained. And now, returning to the nesting-place of the bonxies, I make my final extract, fully uniting with the author's lamentation over the departing race, and also regretting that with the author himself I must now part company for ever. All honour to his memory! Peace to his ashes!

"My own specimens of the eggs were taken one May morning at Hermaness, where some years ago as many as fifty or sixty pairs might be seen, instead of the five or six pairs, now reduced still lower. Indeed even the very few which remain will soon disappear if no means are taken to preserve them from the lighthouse people, strangers to Shetland, who gather eggs of all kinds, and either eat them or wantonly destroy them. When we arrived at the breeding-ground we heard the low croaking sound made by a skua as it flew directly before us, and had we followed the bird we should have lost all chance of finding the nest, but we stood quite still, and the bird suddenly wheeled and made a wide circle round us, keeping rather close to the ground. We immediately separated, and walked in opposite directions, whereupon the bird kept nearer to me than to my companion, and it thus became evident

that I was not far from the nest. The farther I walked in one particular direction, the more impatient the poor bird became, stooping to within a few feet of my head, and circling above me in apparently great anxiety for the safety of its treasure. Well accustomed as I was to the ways of the skua during the breeding season, it was nevertheless with no little effort that I refrained from swerving aside every time the bird, suddenly dropping from a height, came charging directly towards my face; however, it always rose abruptly when within a few feet of me, and passed over my head with great velocity, its wings being fully expanded and perfectly steady, causing, as they rushed through the air, a noise exactly like that of a small sky-rocket. After watching these manoeuvres for some time, I resumed the search upon the ground, and soon found an egg, in a nest which consisted of a neatly rounded cavity in the moss and heather, measuring about eleven inches in diameter, and lined with small pieces of moss, heather and dry grass. Presently we found many more skuas' eggs, but we only brought home a couple, being unwilling to further decrease the already too scanty race, though in a few years more, whether we took all or none, there will very soon be no more skuas on Hermauess."—P. 353.

Here ends this long review. I could heartily and honestly have penned a few eulogistic platitudes, or have transcribed that stereotyped formula of worthless panegyric, "No library should be without it," and thus have saved myself the examination of every page and every paragraph; but such a course would have been unjust to the author and unsatisfactory to the reader; an author has a right to expect at the hands of a reviewer more consideration, more respect, than is evinced by this common-place, this mere matter-of-course commendation; and the reader who is recommended to purchase a book is entitled to such information about its contents as would enable him to form a judgment, favourable or adverse, as the case may be, irrespective of the reviewer's opinion. This object I have endeavoured to keep steadily in view: no one who, after reading the striking passages I have extracted, shall possess himself of the book, can possibly complain of having been induced to purchase by any false representation or undue praise of mine.

And now a word remains for the loving brother who so willingly undertook, and who has so nobly performed, the editorial task of presenting these Observations on the Birds of Shetland to the critical and exacting republic of British ornithologists. He has exhibited an unusual, an unexampled, aptitude for the onerous duty: while exhibiting in every page his fitness, while proving

himself beyond all question the skilful and well-instructed ornithologist, he has kept steadily in view the principle of justice, and never assuming to himself the credit belonging to his brother. Nor must I overlook the modesty, the ever-present and unfeigned modesty, in which he speaks of his own part in the volume now so ably brought to a close:—"I can claim but a single merit for my share in the book—that of accuracy: for the rest, allowance must be generously made for shortcomings almost inseparable from work thrown unexpectedly upon a parish priest, only able to give it the hours which could be spared, and ill spared, from occupation of a wholly different kind."

EDWARD NEWMAN.

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*Ornithological Notes from Norfolk.*

By H. STEVENSON, Esq., F.L.S.

(Continued from S. S. 4191.)

JUNE.

*Rednecked Phalarope.*—Mr. Dowell informs me that an example of this now scarce species was shot during this month on "Snail's Pit," at Swaffham.

*Chaffinch Nesting in Confinement.*—In answer to Mr. Nicholson's note on this point, in a recent number of the 'Zoologist' (S.S. 4238), I can inform him that, in my large out-door aviary, two pairs of chaffinches have paired and nested during the last two summers. This year one nest was built, and three eggs laid by the 17th of May; the other pair did not complete their nest till June. In only one were the young hatched, but these disappeared after a few days, and the nests were soon after pulled to pieces. Of other species, I have had nests and eggs of the greenfinch, lesser redpoll, goldfinch, bullfinch, yellowhammer, sky lark, and tree sparrow, but none hatched off except the redpolls and greenfinches, and only the latter brought up their young. The poor little redpolls laid three times in the season, and each time brought off three or four nestlings, which, as in the previous year, all disappeared in their callow state, as have done the young of other species, and the eggs as well. I laid this slaughter of the "innocents" to a pet thrush, at first; but the same thing went on after he was caged by himself; and I am still at a loss to account for what, to me, is a great

annoyance and disappointment. I think the mice, which I cannot altogether keep down, may have something to do with it; and I have a strong suspicion that bullfinches and greenfinches may be in part the culprits: anyhow, the latter manage to bring up their own young and protect their own nests.

*Turtle Doves Nesting in Confinement.*—A pair of turtle doves, caught wild two years back, began to build in my aviary in the middle of April, and the female commenced sitting on two eggs by the 24th, and two young birds were hatched on the 9th of May, or perhaps a day or two before. The old birds took it by turns to sit, and persecuted most relentlessly the only young bird that they reared last summer; the old male, especially, driving it from perch to perch, or on the ground chasing it round the aviary, pecking at it, and uttering a curious croaking note, more like a short cough than a "coo." One of the young birds left the nest on the 21st of May; the other the day following; and were then able to fly a little. Two more eggs were laid by the 20th of June, and two nestlings hatched in July, during my absence from home. The young appear to acquire their full plumage very rapidly, as by the end of September I could only distinguish the pair hatched in May from the parent birds by the black and white bars on the sides of the neck being still incomplete, the same marks being scarcely perceptible in the young of the second brood.

*Snow Buntings Nesting in Confinement.*—The most interesting event in my aviary, this summer, has been the nesting of a pair of snow buntings; my oldest male bird, netted last winter, having mated with the youngest female in my collection, judging by the darkness of her plumage. The old male, by the end of May, had acquired the pure black and white tints of its summer plumage; and on the 7th of June I first noticed the female collecting materials for a nest, and slyly disappearing with them into a crevice of the car-stone rock-work which supports my fountain-basin. The male bird took no part in this work, nor did I ever see him carrying anything in his bill, but he seemed to constitute himself the guardian of the entrance to his mate's nesting-place, and would allow no other birds—whether of his own species or otherwise—to settle near the spot. The female was particularly jealous of observation, and would never enter the hole if she saw me watching her, but, with her mouth full of grass or twigs, would run all over the rock-work, peeping into other holes and

crannies, as if bent on concealing from me the one she had chosen ; but so soon as I retired where I could watch her unseen, she entered it at once ; and for more than a week continued to carry into this dark recess a large mass of nesting-stuff, consisting of small twigs, moss, grasses, hairs, and feathers, with which I supplied her to make her choice. Unfortunately, from the construction of the rock-work itself, and the smallness of the aperture leading to the nest, I could neither see in nor insert my hand far enough to ascertain its exact position, or whether any eggs were really laid ; but, as soon after she ceased to carry in materials, she was not visible for some hours in the day, and when she did appear began feeding directly, I have no doubt that eggs were laid, and that she sat close for some time,—certainly up to the 4th of July, when I was obliged to leave home for some weeks. On my return, about the 10th of August, I found both old birds consorting with others of their species, as in winter, and the nest evidently deserted ; but whether any young were hatched, and destroyed by mice in the interior of the rock-work, or the water from the fountain had an effect upon the sitting bird and her eggs, I cannot say. I only hope another year, as both birds are still alive, to give a more satisfactory report. The actions of the female, when endeavouring to carry in small twigs through the narrow opening, were highly amusing, as she would persist in carrying them crosswise in her bill, and the twigs, being longer than the hole was wide, barred her entrance, so that, in her attempts to force her way in after this fashion, the unyielding stick would often drive her backwards, and this again and again, until, by chance, she changed her hold, so as to drag it in with, or rather after, herself. The nesting of this bird in confinement is, I believe, an unusual circumstance.

*Nests of Blue Tits and Missel Thrushes.*—A blue tit's nest was found this summer, at Ranworth, built into the crown of a cabbage plant in a kitchen garden ; and in two instances I have heard of missel thrushes appropriating small articles, such as lace and collars, hung out after washing, which were built into their nests with other materials.

*Pied Wagtails building on a Thrush's Nest.*—On the 3rd of June a friend showed me a pied wagtail's nest built into a deserted nest of a song thrush in a laurel bush, and on which the female wagtail was then sitting. Soon after he informed me that he

found the young of the wagtail lying dead at the foot of the shrub; and subsequently the upper nest was removed, and four thrush's eggs laid in the old foundation, which had been relined; no doubt the work of the original occupants.

*Hawfinch.*—A nest of young hawfinches was found at Brooke this summer.

*Baillon's Crake.*—A beautiful specimen—now in my collection, which proved to be a female in full summer plumage—was picked up dead, under the telegraph wires on the Lynn and Hunstanton line, on the 2nd of June.

#### JULY.

*Hobby eating Bats.*—About the first week in this month a Norwich bird-stuffer received a hobby whose stomach contained the remains of several large grasshoppers and of two small bats; the latter, I imagine, not generally known as forming part of the diet of this species.

*Hooded Crow.*—A solitary hooded crow was seen at Northrepps as early as the 18th of July.

*Rednecked Phalarope.*—Mr. F. Norgate informs me that on the 4th inst. he received a female of this species in full summer plumage, which had been caught alive by a boy at Salthouse. When placed in a basin of water it fed on flies thrown into the water, and sat on the surface as buoyantly as a gull, with the head drawn back between the shoulders. It frequently dipped its bill in the water; and, though too weak to fly or stand on its feet, it seemed generally ready to eat or play with the flies given to it, but died the same evening in poor condition, though apparently uninjured. Another was shot in the same neighbourhood about a fortnight later.

#### AUGUST.

*Autumn Migrants.*—A knot seen at Blakeney on the 1st, and a green sandpiper at Roughton, near Cromer, on the 4th.

*Osprey.*—An immature bird shot on Breydon on the 25th.

#### SEPTEMBER.

*Peregrine.*—A single bird seen at Northrepps about the 12th of this month.

*Migratory Waders.*—On the 12th I saw nine or ten pigmy curlews that had been shot at Yarmouth, with a sanderling and

some golden plovers. At Blakeney, between the 8th and 12th, beside dunlins, gray plovers (in the young plumage), bartailed godwits and knots, three or four pigmy curlews were shot, one little stint, one Kentish plover, and a purple sandpiper, of which species more were seen. The Kentish plover was in its first year's plumage, and very difficult to distinguish from ring dotterels of the same age.

*Early Fieldfares, &c.*—Mr. Purdy, of Aylsham, sprung a fieldfare from the turnips on the 1st of September, and saw two or three more on the 8th. On the 21st, when partridge shooting, I found the turnips full of song thrushes, but scarcely any blackbirds; on the 19th of October the same fields were full of blackbirds as well as the fences, and hardly any thrushes to be seen.

*Rednecked Phalarope.*—Another specimen was killed near Lynn some time this month. This species has not, I believe, occurred here since 1868.

#### OCTOBER.

*Ring Ouzel.*—Six seen at Northrepps on the 14th.

*Late Appearance of Summer Migrants.*—A goatsucker seen at Northrepps on the 6th, a few swallows on the 5th, and a house martin at Cromer on the 31st. On the 14th, in company with Mr. J. H. Gurney and others, I saw a swift flying round the steeple of Cromer church; and, on good authority, I learn that one was seen at the same place on the 20th, probably the same bird. Two swallows and some house martins were last seen by myself, near Norwich, on the 19th.

*Twite.*—On the 20th I saw five of these winter visitants that had been netted near Yarmouth, some still retaining the rich flame-colour on the lower part of the back.

*Arctic Tern.*—On the 20th an adult bird of this species was sent to Norwich, in the flesh.

*Skuas off the Coast.*—During the last week of this month a Richardson's skua and no less than eleven pomarine skuas were recorded in a local journal to have been brought into Yarmouth, which no doubt, as is usual at this season of the year, were shot from the herring smacks when on their fishing grounds out at sea, these birds, like the gulls, being attracted to the vessels as the nets are hauled in.

*Merlin.*—A male, in perfect plumage, is said to have been shot on the North Denes at Yarmouth on the 29th.

*Fulmar Petrel.*—One was shot near Lynn on the 14th of November.

HENRY STEVENSON.

Norwich, December 17, 1874.

*Ornithological Notes from North Lincolnshire.*

By JOHN CORDEAUX, Esq.

(Continued from S. S. 4226.)

SEPTEMBER, OCTOBER AND NOVEMBER, 1874.

*Lark.*—September 29. There was a large immigration of larks about this date: they came either on the night of the 28th or the preceding; weather wild and stormy; wind south-west; full moon on the 25th. There were many thousands congregated in the stubbles, near the coast, on the morning of the 29th.

*Swift.*—Sept. 30. Last seen; a single bird; immature.

*Turtle Dove.*—October 2. I have seen a single turtle dove for the last week in the vicinity of a small plantation in one of my fields. It is of very rare occurrence in this district.

*Wild Geese.*—Oct. 5. First appearance.

*Greenfinch.*—Flocks of male greenfinches appeared.

*Buzzard.*—Oct. 7. There was a buzzard to-day—a very dark bird—in one of the plantations; subsequently I have seen it at intervals, in the evening, near the same locality, throughout October and November. It is dreadfully bullied by the hooded and carrion crows.

*Chimney Swallow and House Martin.*—Still numerous; but all are birds of the year.

*Bartailed Godwit.*—Oct. 14. Noticed a flock of thirteen on the foreshore this morning. They have been uncommonly plentiful during the autumn.

*Hooded Crow.*—I saw hooded crows on the wolds on the 17th. A party of about forty were seen on the foreshore in this parish on the 15th, when I find there was a general arrival along the coast.

*Woodcock.*—Oct. 15. Two seen; one shot. The first flight arrived about this date; others, after the heavy gale from south-west to west-north-west, on the 21st. Up to this date (Nov. 30) an unusually good woodcock season in North Lincolnshire.

*Golden Plover*.—Oct. 23. First flocks arrived in our marshes.

*Rook*.—Oct. 24. I was standing this afternoon talking with a friend, under one of the trees in my rookery, when we were surprised at hearing a shrill caw overhead; at the same time a young rook hopped from one of the nests: it was sufficiently fledged to take short flights from branch to branch, and to the adjoining trees.

*Martin*.—Oct. 31. Saw two birds of the year hawking over a sheltered pond on the wolds this afternoon. Wind north-east, and very cold and sharp.

*Fieldfares*.—November 1. Have arrived; previous night, wind north-east by east. November 2. Many.

*Snow Bunting*.—Nov. 5. First flocks of snow bunting, one hundred and fifty to two hundred together; all, without exception, are young birds of the year.

*Knot*.—Nov. 5. The main body have arrived on the flats; some very large flocks seen.

*Purple Sandpiper*.—Nov. 5. Common as this bird is in the autumn on our sea-coasts I very rarely meet with it within the Humber. There was one to-day on our flats near low-water mark, busily foraging, like a dunlin, on one of those hard, broken clay banks (all interlaced with roots of the primæval forest), only uncovered during great ebbs. This bird was absurdly tame, and I could not get it to rise, although I was only separated by a narrow, deep channel, which, however, the slippery character of the soil would not allow me to jump: it took no notice whatever of shouts and the waving of a handkerchief, nor yet of a shower of small pebbles, only jumping on one side when one came too near; a larger stone dashed the mud over it, causing it at last to rise and fly seaward. Although I wanted a specimen it was no use shooting, as I knew the tide would have prevented me recovering it.

*Snow Bunting*.—Nov. 12. Great numbers have come in, nearly half the flocks now being composed of old birds; previous night, wind north-east, with frost and drifting snow-squalls.

*Wood Pigeon*.—Nov. 12 (10.30 A.M.). In flocks, flying from the north-east, and passing the sea inland; have been coming in at intervals since daylight, from thirty to fifty and seventy together.

*Blackbirds*.—Nov. 12. Great numbers of blackbirds have come in,—mainly young males, having black bills. In one short hedge, which was full of blackbirds, I could only make out one female bird; all the rest were young males.

*Golden Plover*.—Nov. 12. The main body appear to have arrived; numerous and large flocks in the parish.

*Snipe*.—Nov. 12. The main flight came with the rough wild weather on the night of the 11th.

*Stonechat*.—I see several young birds of the year haunting the vicinity of the sheep, folded on the turnips and cole.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire.

November 30, 1874.

*Errata*.—In my June notes, p. 4224, line 3, for upland read ploughed-land; line 29, for along Sleddale read Long Sleddale; p. 4225, line 5 from bottom, for pretensions read persecutions.—J. C.

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**Quadriparæ, a newly-associated Group of Birds.**—When, in 1850, I proposed an arrangement of birds founded on physiological characters, I suggested the removal of the herons (from among the quadriparous birds, where the exigencies of the Quinarian or Vigorsian system required their presence) to a station between the Accipitres and Totipalmes, to neither of which groups had any one previously perceived that they bore any affinity. Two universally recognised groups, the plovers and the snipes, thus become contiguous; but I went no farther than this; I did not propose what now appears desirable, *namely*, that all the quadriparous birds—or those which lay four eggs, and four only, and place them with the small ends meeting in the middle—should have a descriptive and distinctive name in common, and I now venture to suggest the word *Quadriparæ* as supplying such a name.—*Edward Newman*.

**Rare Birds in Guernsey.**—I have a longeared owl, shot at St. Martin's on the 9th of November; a merlin, a female, shot in the Marais, which had struck down a water rail a minute or two before it was shot: after striking down the rail, the merlin flew into a tree, about ten yards from which the man who shot it found the rail dead: he brought me both birds; the skin of the rail was broken from the shoulder to the back of the skull. On the 20th a beautiful little bustard was shot at the back of St. Andrew's, very near the place where one was shot fifteen years since; the length of the present specimen is seventeen inches and a half; spread of wings thirty-seven inches; weight twenty-seven ounces, Guernsey weight. I have the first recognised specimen of the siskin; a boy knocked it down with a stone in an orchard at the Vrangue, in September.—*James Couch*; 7, *College Street, Guernsey, November 29, 1874*.

**Flight of a Male Peregrine at an old Male Hen Harrier.**—When snipe-shooting on the Braunton marshes, a day or two since, a magnificent old

male hen harrier flew very near to me, and the next second a male peregrine falcon appeared upon the scene in swift pursuit. I then had the pleasure of witnessing a flight which now-a-days must be a rare one indeed within the British Islands, as the peregrine made swoop after swoop at the harrier, and was each time baffled by its intended quarry, with greater skill than I could have supposed a harrier capable of. At one instant the peregrine made so well-aimed and vigorous a swoop that I fully expected him to bind his quarry, and was prepared to run forward on the chance of coming in for something good myself, when the harrier again eluded the stroke, and the flight then passed out of view behind a high ridge of sand-hills. In the end, however, the harrier shook off his persecutor, for later in the afternoon I put him up in a hummocky grass field where he was squatting.—*Murray A. Mathew; Bishop's Lydeard, November 21, 1874.*

**Hobby at Portishead and Goldeneye near Axbridge.**—The hobby is of such rare occurrence in Somersetshire that it seems worth while mentioning that one, a bird of the year, was recently caught in a net at Portishead, near the mouth of the river Avon. I may also mention that, from the man who caught the last-mentioned specimen, I obtained an immature goldeneye, which had been shot at Axbridge, near Weston-super-Mare, on the 4th inst.—*Marcus S. C. Rickards; 37, Cornwallis Crescent, Clifton, November 20, 1874.*

**Hobbies in East Yorkshire.**—A female hobby, apparently in the second year's plumage, was shot at Kilnwick, a village some few miles north of Beverley, by Mawson, gamekeeper, on the 6th of June last. I did not see the bird at the time, so am unable to give any particulars: it has been given me for my collection. Another one, also a female, a bird of the year, was shot at Flamborough, by Mr. Robert Crowe, on the 30th of September last: he informed me he was shooting rock pigeons (*Columba livia*) under the cliffs when he shot it. The stomach was completely crammed with the remains of the common dung beetle, and as a greater part of the mass had only been recently swallowed, I separated the portions, and by the aid of a magnifying-glass was enabled to see clearly the wings, legs, &c., but could find no trace whatever of any other kind of food. I have been informed by the head gamekeeper to Lord Herries, of Everingham Park, in this riding, that a few years ago he shot a hobby from its nest in a high oak in the park; the nest contained three eggs. I did not see either the bird or eggs, but I think he is a person not likely to be mistaken.—*F. Boyes.*

**Moulting Freak of a Robin.**—Bird-fanciers seem to be well acquainted with the method of causing the "freak in the robin," referred to by Mr. Newman in the 'Zoologist' for December (S. S. 4258). At page 204 of 'Beeton's Management of Home Pets' are the following remarks about this bird:—"Handsome looking birds may sometimes be seen for sale with white, or rather cream-coloured, feathers in the wings or tail. This is

managed by plucking out the feathers a month or so after the bird has recovered from a moult. The new feathers will be white. This, however, is a cruel practice, the adoption of which I by no means recommend. Besides, it is hardly worth the trouble, as feathers so produced are so weak and sickly as to break off or fall out with the least violence."—*George J. Porritt; Huddersfield, December 2, 1874.*

**Whitethroat's Nest twelve feet from Ground.**—I was much surprised a short time since at discovering a whitethroat's nest at the extreme top of a whitethorn bush on Clifton Down, and fully twelve feet from the ground. The bush in question is situated in one of the most frequented parts of the down, and inasmuch as there are plenty of brambles, nettles and low herbage within a short distance in every direction, it is very remarkable that the birds should have deviated so far from their usual habits as to select such a conspicuous and elevated position for their nest. As it contained young, the old birds made frequent journeys to and from it, and were constantly flying about and alighting close to me, so that I had ample opportunity of satisfying myself as to the species. In my birdsnesting days of yore I have found some hundreds of nests of this bird, but I have never before known one placed at an inaccessible height.—*Marcus S. C. Rickards.*

**Food of the Blue Tit.**—I have been almost daily watching these active little creatures feeding on the fruit in the garden, and whatever may be their diet at other times, fruit is undoubtedly their chief food in the autumn. I am not going to say a word in disparagement of the little restless bluecap; I know his usefulness too well for that. An old pear tree, the fruit of which I allowed to remain ungathered, has been daily visited by this tit, and as long as the pears lasted it was scarcely ever untenanted by some of them. They usually, almost invariably, attack the pears round the stalk, and the consequence is that the pear frequently falls down before it is half eaten, in which case I noticed that they immediately commenced a fresh one; that was when there were plenty on the tree; now they are nearly all gone I see they feed on the fallen ones. Apples are just as much sought after. It is my practice, when looking over the stored fruit, to throw out the damaged ones for the birds; and when there is snow on the ground it is interesting to watch the blackbirds, &c., come to the feeding-place; they soon find it out, and in severe weather a goodly company assemble to the banquet, tits amongst the number. If the snow be deep, I sweep a space before putting the food down. I have frequently watched the blue tits feeding on the Indian corn (maize) that was given to the pheasants in the pens. The tits pass easily through the wire netting, and, taking a grain in their beaks, fly up with it to the top of the pens or to the perches, and then, by holding the corn with their feet, they peck away at the germinating portion and extract it; having done so, they let it fall and pass in again for another, which is

treated in the same way. I have seen six or seven all feeding in like manner at the same time. I never noticed a great tit do this, but they may do for all that.—*F. Boyes.*

**Rock Dove at Instow.**—During the recent gales I one morning noticed a rock dove on the sand-hills at Instow, and heard of a flock of upwards of thirty having been seen in a stubble-field a few miles inland.—*Murray A. Mathew.*

**Extraordinary Vitality in a Partridge.**—When forming one of a shooting party near here a circumstance occurred that is perhaps worth mention. A beater, being a short distance behind, put up a partridge, which flew in a peculiar manner, and shortly alighted again, seeing which one of the party turned back with the beater to shoot it, but it allowed the latter to strike it with his stick; it was then killed and shown to me, when the cause of its short wavering flight was at once apparent, for I found both eyes had been shot completely out and both mandibles of the beak broken, while the upper had grown considerably longer than the lower one, and both were united again, but broke with a slight pressure. This frightful injury must have been inflicted a month previously, and I think it remarkable that the poor creature had been enabled to procure sustenance and maintain an existence with such extensive injuries, to say nothing about being completely blind. Still the bird was not nearly in such bad condition as I should have thought. Is it probable that other members of the covey had fed it? as I can scarcely conceive it possible for it to have pecked grain, or even green food, with its beak shattered to atoms. I was sorry I did not open it and see what had formed its diet.—*F. Boyes.*

**Sclavonian Grebe in East Yorkshire.**—On the 29th of October last Mr. Robert Crowe, of Flamborough, shot a Slavonian grebe in full summer plumage. It was swimming in the sea quite near the shore, and is in splendid feather, showing no sign of change, except a few white feathers intermixed with the reddish chesnut ones on the front part of the neck joining the breast. Dissection proved it to be an adult female, and it would appear that amongst the grebes some few of the old birds retain much of their summer dress through the winter. The stomach contained, as usual, a quantity of silky hairs and feathers off the bird's breast, and the remains of a large black beetle.—*Id.*

**Great Northern Diver in Bridlington Bay.**—A friend of mine, Mr. Carter, of this town, shot a fine specimen of the great northern diver (*Colymbus glacialis*) in Bridlington Bay in the second week in October; the bird made its appearance, after a dive, with a fish in its beak, about forty yards from the boat. Mr. Carter also procured a specimen of the gannet the same day.—*W. E. Clarke; 20, De Grey Road, Leeds, November 23, 1874.*

**Correction of an Error.**—Allow me to correct an error which inadvertently appeared in 'The Field' of October 31st, and has been copied

into the 'Zoologist' of this month (S. S. 4262). The bird mentioned as an immature little gull is a very pretty specimen of Sabine's gull (*Xema Sabini*), and probably a bird of the year. It closely resembles the young bird in Mr. Gould's plate, with the exception of the white markings on the wings and tail-feathers being rather less well defined. The bird was picked up in a most emaciated state on the 26th of October, after a very heavy gale, at Nobold, about two miles south-west of Shrewsbury. The sex was not distinguishable. I believe this to be the first Shropshire-killed specimen on record.—*John Roche; Clungunford House, Aston-on-Clun, Shropshire, December 11, 1874.*

**Pomatorrhine Skua at Instow.**—Being lately at Instow, I heard that about the date Mr. Rickards obtained his two pomatorrhine skuas on the opposite flats of Northam, a bird, which, from the description given me, I have no doubt was a third example of this species of skua, was seen on the sands, very near to some of the houses, devouring the body of a dead rat. I was told that the bird was so tame or so intently occupied with its dainty meal that it allowed the boys of the place to pelt it with stones, and was actually nearly knocked down with a stick before it was frightened away. The pomatorrhine skua is an addition to the list of birds which within my experience have been seen in the Taw and Torridge estuary.—*Murray A. Mathew.*

**Large Number of the Greater Shearwater off the Coasts of Devon and Cornwall.**—Since my recent note on the occurrence of the greater shearwater off the coasts of Devon and Cornwall (Zool. S. S. 4262), I have been informed that the gentleman who shot two or three from his yacht, and brought them to Plymouth for the purpose of having their skins made into screens, said that off the Start Point there were hundreds of them, and that he could have killed any number had he only known they were at all rare or of any value whatever. Although I have made every inquiry, on account of the many letters I have received from ornithological friends residing in various parts of the country, begging me to secure specimens for their collections, yet I cannot learn of any more having been since obtained either on the Devon or Cornish coasts.—*J. Gatcombe; 8, Lower Durnford Street, Stonehouse, Plymouth, December 11, 1874.*

**Richardson's Skua and Storm Petrel at Formby, Lancashire.**—A fine specimen of Richardson's skua was secured on the beach here last week but one, and is now preserved among my collection of local birds. In October, last year, I obtained a storm petrel in this parish, within thirteen miles of Liverpool; on Christmas-day another was brought to me.—*John Wrigley; Formby.—'Field,' October 31, 1874.*

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**Large Sturgeon at Torquay.**—I have just seen, in the shop of Stubbing, the fishmonger here, the head and shoulders of a fine sturgeon, which was captured by a trawler in Torbay on Saturday, November 21st. Strange to say, none of the people in the shop could tell me the exact weight of this monster, although they roughly guessed it at being between three and four hundred weight. Its length was eight feet eight inches, and it contained "row" weighing sixty pounds.—*Gervase F. Mathew; Torquay, Nov. 25, 1874.*

**The Royal Aquarium and Winter Garden Society at Westminster.**—The money for this undertaking has been collected, the ground has been secured, and the architect, Mr. A. Bedborough, with Messrs. Leete, Edwards and Norman as engineers, and myself as naturalist, are arranging the plans. The spot the building will cover comprises two acres or so of at present waste ground in Tothill-street, Broadway, on the northern side of the eastern end of Victoria-street. The southern frontage of the Aquarium faces Tothill-street and the northern side of the Westminster Palace Hotel, and the principal or eastern end of the Aquarium will be separated by only the width of the road from the western front of Westminster Abbey. The general arrangement will be that of a kind of minor Crystal Palace without the outside grounds. The principal promenade will be nearly five hundred feet long, and one hundred and fifty feet broad. Music will form a very conspicuous feature in the place, there being two orchestras, one in the centre of the north side, open to the promenade, and one in the closed concert-room at the south-west angle of the building, and in one or both of these orchestral compositions will be discoursed twice daily by a string and wind band of the Beethoven number of sixty performers, and sometimes by a much larger number. There will be broad galleries containing dining-rooms, and places for light refreshments, with all the usual accompaniments of such places, and a reading and chess-room, with dressing-rooms, rooms for band, chorus, and solo artists, for secretary, clerks, naturalist, board-room, and so forth. The Aquarium portion will be so great that it will be the largest aquarium yet made in any inland place. The glass frontage of the tanks will measure nearly six hundred feet for public inspection, and eighty feet more for private reserve tanks. The lengths of separate tanks will vary from sixty to ten feet, and their width from back to front will be from eighteen feet to three feet, their vertical height being from six feet to one foot. The number of tanks has not been definitely fixed, but they will be from forty to forty-five in public, and twelve to fourteen in private. The reservoir of water below the basement of the building will contain 600,000 gallons. Two-thirds of the entire system of tanks will be sea water, and one-third fresh water, and the whole will be maintained unchanged, but circulating through the tanks, day and night, at the rate of from eight thousand to twenty thousand or more

gallons an hour. The circulating machinery will be multiplied by four in one portion, and by eight in another portion, to secure adequate currents at all times, without interruption by accidents or other causes. In some of the tanks an automatic tidal-like arrangement will be attempted, the water in these receptacles rising and falling at intervals which may be varied at will. In fact, every improvement suggested by an experience in Aquaria extending over twenty-one years will be painstakingly carried out at Westminster. By the liberality of the Boards of Direction of both Institutions, I maintain my situation as manager of the Crystal Palace Aquarium, in conjunction with the same office at Westminster.—*W. A. Lloyd; November 26, 1874.*

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## Proceedings of Scientific Societies.

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### ZOOLOGICAL SOCIETY OF LONDON.

November 17, 1874.—GEORGE BUSK, Esq., F.R.S., V.-P., in the chair.

The Secretary read a report on the additions that had been made to the Society's menagerie during the month of October, and called particular attention to a Gentoo penguin (*Pygocetes taniatus*), from the Falkland Islands, purchased October 22nd, being the first example of this species of penguin received alive, and a toothbilled pigeon (*Didunculus strigirostris*), from the Samoan Islands, deposited by Mrs. Boddam-Whetham, October 23rd. [The penguin died on the 3rd of November, as already reported (Zool. S. S. 4264).—*E. N.*]

The Secretary exhibited on behalf of the Rev. J. S. Whitmee, an egg of *Paracdiastes pacificus*, and an accompanying egg of the Samoan Porphyrio.

A communication was read from Sir Victor Brooke, containing some remarks on the identity of a certain deer in the Society's collection, which had been determined as *Cervus Savannarum*.

A series of eggs of megapodes (*Megapodius*), transmitted by Mr. John Brazier, was exhibited. These had been obtained from different islands of the Solomon group.

Mr. R. B. Sharpe also exhibited some megapodes' eggs from the southern part of New Guinea.

Prof. Mivart read a paper on the axial skeleton of the Struthionidæ, and pointed out that, judging by the characters of the axial skeleton, the emeu presents the least differential type; from which Rhea diverges most on the one hand and Apteryx on the other; that the resemblance between *Dromæus* and *Casuaris* is exceedingly close, while the axial skeleton of *Dinornis* is intermediate between that of *Casuaris* and *Apteryx*; its affinities, however, with the existing New Zealand form very decidedly predominating.

A communication was read from Major H. H. Godwin-Austen, describing five new species of Helicidæ, of the sub-genus Plectopylis, from the Khasi and Naga Hills, from Darjeeling, and from the Burmese region.

Mr. R. Bowdler Sharpe read a paper on the larks of Southern Africa, in which an attempt was made to reduce into order the numerous genera and species of this difficult group.

A communication was read from Dr. John Anderson, pointing out that his *Macacus brunneus* was truly distinct from *M. arctoides* of Geoffroy St. Hilaire.

A communication was read from the Count Turati and Dr. T. Salvadori, describing a new Trogon of the genus *Pharomacrus*, proposed to be called *P. xanthogaster*.

Dr. Günther read a description of a new species of kangaroo from N.W. Australia, proposed to be called *Halmaturus apicalis*.

Mr. Selater read a notice of some specimens of the black wolf of Tibet, now or lately living in the Society's Menagerie.

Mr. Dresser exhibited eggs of the various European species of *Hypolais*, together with those of *Acrocephalus streperus* and *A. palustris*, and pointed out that these two groups (*Hypolais* and *Acrocephalus*) approach each other in their eggs as well as in other characters, the two nearest allied in each group being *Hypolais Rama* and *Acrocephalus palustris*.

Mr. Blanford read a notice of two new Uromasticine lizards from Mesopotamia and Southern Persia, proposed to be called *Uromastix microlepis* and *Centrotrachelus loricatus*.

A second paper by Mr. Blanford contained descriptions of two new species of ichneumon and of a hare collected by Mr. F. Day in Sind, and new to the Indian Fauna. One of the former and the hare were believed to be new to Science, and were called *Herpestes ferrugineus* and *Lepus Dayanus*.

December 1, 1874.—Dr. A. GÜNTHER, F.R.S., V.-P., in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of November, and called particular attention to a male Humboldt's saki (*Pithecia monachus*), three examples of the night parrot, and an orange-bellied helictis (*Helictis subaurantiaca*), that had been purchased during the month.

A letter was read from the Rev. S. J. Whitmee, of Samoa, stating that he had sent home for the Society some birds, and a pair of the Samoan bat which had lately been described by Mr. Alston as *Pteropus Whitmeei*. Particulars were given as to the habits of the latter.

A communication was read from Mr. Henry W. Piers, of Cape Town, containing remarks on some specimens of *Gymnetrus* in the Museum at Cape Town.

The Secretary announced that Colonel R. S. Tickell, late of H.M. Indian

Army, had presented to the Society's library a very finely illustrated manuscript work, in seven small folio volumes, on the Ornithology of India.

A communication was read from Mr. J. Brazier, of Sydney, New South Wales, giving descriptions of eleven new species of terrestrial and marine shells from North-East Australia.

A paper, by Messrs. P. L. Sclater and O. Salvin, was read on birds collected by Mr. Whitely in Western Peru, being the eighth communication made by the authors on this subject.

A communication was read from Mr. H. Whitely, containing some further notes on humming birds collected by him in High Peru.

Mr. A. G. Butler read a paper in which he gave descriptions of three new species of Homopterous insects from various parts of the world.

Mr. A. H. Garrod gave some further particulars on the mechanism of the "shew off" in the bustards, and described the peculiar structure of the *frenum linguæ* recently noticed in a young male of the great bustard.

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#### ENTOMOLOGICAL SOCIETY OF LONDON.

November 2, 1874.—Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

##### *Additions to the Library.*

The following donations were announced, and thanks voted to the donors:—'Proceedings of the Royal Society,' nos. 153—155; presented by the Society. 'Proceedings of the Scientific Meetings of the Zoological Society of London,' 1874, parts 2 and 3; by the Society. 'The Journal of the Quekett Microscopical Club,' no. 27; by the Club. 'Annales de la Société Entomologique de Belgique,' t. xvii. fasc. 1; by the Society. 'Bulletin of the Buffalo Society of Natural Sciences,' vol. ii., no. 2; by the Society. 'Stettiner Entomologische Zeitung,' 1874, nos. 7—9; by the Society. 'Boletin de la Academia Nacional des Ciencias Exactas existente en la Universidad de Cordova,' entrega i., ii.; by the Academy. 'Bulletin de la Société Imperiale des Naturalistes de Moscou,' 1873, no. 4, and 1874, no. 1; by the Society. 'Proceedings of the Linnean Society of London (Session 1873—74); by the Society. 'Memoires de l'Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique,' t. xl.; by the Academy. 'Bulletins de l'Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique,' Ser. 2, t. xxxv. and xxxvi.; by the Academy. 'Mittheilungen der Schweizerischen Entomologischen Gesellschaft,' vol. iv., Heft no. 5; by the Society. 'Proceedings of the Boston Society of Natural History,' vol. xv. pts. 3 and 4; vol. xvi. pts. 1 and 2; by the Society. 'Memoirs of the Boston Society of Natural History,' vol. ii., part ii., no. iv.; part iii., nos. i. and ii.; by the Society. 'The Transactions of the Linnean Society,' vol. xxviii., part 4; vol. xxx., part 1; by the

Society. 'The Canadian Entomologist,' nos. 6—8; by the Editor. 'Smithsonian Miscellaneous Collections—Monographs of the Diptera of North America,' part iii., by H. Loew; by the Smithsonian Institution. 'L'Abeille,' 1874, livr. 13 and 15—18; by the Editor. 'Iconographie et Description de Chenilles et Lépidoptères, inédits par P. Millière,' t. iii., livr. 33 and 34; by J. W. Dunning, Esq. 'The Entomologist's Monthly Magazine,' August—November; by the Editors. 'Newman's Entomologist' and 'The Zoologist,' August—October; by the Editor. 'Exotic Butterflies,' part 92; by the Author, W. C. Hewitson, Esq. 'Observations on Bees and Wasps,' by Sir John Lubbock, Bart., F.R.S., M.P., F.L.S., Vice-Chancellor of the University of London; by the Author. 'On a New Genus and Species (*Hylæocarcinus Humei*) of Land Crabs from the Nicobar Islands,' by James Wood-Mason, of Queen's College, Oxford; by the Author. 'Canons of Systematic Nomenclature for the Higher Groups;' 'Fossil Insects from the Rocky Mountains;' 'The Curious History of a Butterfly;' 'The two Principal Groups of Urbicolæ (*Hesperidæ*, auct.);' 'Note on the Species of *Glaucopsyche* from Eastern North America;' 'Tentamen determinationis Digestionis atque Denominationis Singularum Stirpium Lepidopterorum, peritis ad inspiciendum et dijudicandum communicatum, a Jacobo Hübner;' by the Author, S. H. Scudder.

By purchase:—'Catalogus Coleoptorum hucusque descriptorum Synonymicus et Systematicus, autoribus Dr. Gemminger et B. de Harold;' tome xi. Chrysomelidæ (pars i.).

#### *Exhibitions, &c.*

Mr. Stevens exhibited three specimens of *Deiopeia pulchella*, taken at Arundel and Deal, and a *Noctua* from Dover that he had not been able to identify.

Prof. Westwood remarked that the late Lieut.-Gen. Sir J. B. Hearsey had frequently observed *D. pulchella* to be very destructive in gardens in different parts of India. He also stated of the specimens of *Pronuba Yuccasella* sent to him by Mr. Riley from Missouri, as noticed at last meeting, several of them had emerged from the pupa-cases a few days after, and the remainder had continued to emerge during three months. He further remarked that he had recently seen the collection of Lepidoptera of Herrich-Schæffer, now in possession of his son Dr. Schæffer, of Ratisbon, but that, unfortunately, they had been so much neglected that the greater part were in the worst condition. The collection of Tortrices formed by the late Herr Fischer v. Röslerstamm were, however, still in good preservation. At Geneva he had visited the new buildings erected for the scientific collections; but those buildings having been erected in the old moat of the town, he regretted to observe that the unarranged portions of the collections, which were deposited in the lower floors, had suffered in consequence from damp. The collection

of Coleoptera formed by M. Melly, being on the upper floor, were in good order.

Mr. Bird exhibited specimens of the following rare Lepidoptera, *viz.*:—

1. *Sesia culiciformis*. Bred from pupæ obtained at Rowhill Wood, near Bexley. The usual type with the *red* band across the body is not uncommon, but those exhibited had the band *yellow*. Mr. Bird had bred several this and last year, and in both years the proportion was almost exactly the same, *viz.* one yellow to every twenty-five with the red band.

2. *Limacodes asellus*, with pupa-case. Bred (for the first time) from pupæ found by a friend at Marlow, Bucks, attached to the leaves of the beech.

3. *Nola albulalis*. Taken near London.

4. *Nonagria brevilinea*. Taken at Horning Fen, Norfolk. This appears to be a scarce insect; two of the specimens exhibited were without the characteristic short line at the base of the wing.

5. *Pterophorus rhododactylus*, with pupa-case. Bred.

Mr. Jenner Weir exhibited specimens of *Mantis religiosa*, with two of the egg-cases, taken by himself at Meran, in Tyrol, in September last.

Mr. M'Lachlan exhibited a printer's block (such as is used for printing posting-bills) attacked by a species of *Anobium*, and he was informed that the insect was causing serious damage to the printer's stock of these blocks. The wood was believed to be pear-tree. He had recommended soaking the blocks in a mixture of carbolic acid and water.

#### *Papers read, &c.*

Dr. Sharp communicated "Descriptions of New Genera and Species of Pselaphidæ and Seydmænidæ from Australia and New Zealand." The paper contained descriptions of forty-four new species, three of them belonging to the family Seydmænidæ. Of the forty-one species of Pselaphidæ, twenty-six were from Australia and fifteen from New Zealand, the latter being the first specimens of Pselaphidæ that had, as yet, been obtained from New Zealand. He believed that the islands would prove to be rich in Pselaphidæ, and alluded to the great scientific importance of an accurate knowledge of the New Zealand fauna, and to the special importance of gaining as rapidly as possible a knowledge of the existing Coleoptera, as such knowledge would contribute largely to the solution of many important scientific questions; and as a large proportion of the species were confined to small areas of distribution there was great reason to fear they would be easily killed out, and thus the fauna itself would disappear with the changes caused by colonization and the cultivation of the soil.

Mr. Darwin communicated a paper containing remarks by Mrs. Barber, of Griqualand, South Africa, on the colour of the pupa of *Papilio Nireus*, in

connection with the surroundings of its place of attachment, the pupa appearing to assume a protective resemblance to the surface to which it is fixed, and suggesting that some photographic influence might be at work. A discussion ensued, in which Professor Westwood, Mr. M'Lachlan and others took part; and Mr. Meldola remarked, in reply to Mr. M'Lachlan, that the action of light upon the sensitive skin of a pupa had no analogy with its action on any known photographic chemical. No known substance retained permanently the colour reflected on it by adjacent objects. Mr. Meldola further observed that there was no difficulty in believing that larvæ might become affected in colour by the colouring matter of the food-plant, since chlorophyll in an unaltered condition had been found in the tissues of green larvæ. Facts of this nature did not, however, exclude the possibility of the action of Natural Selection in such cases, for the property of showing the colour of the tissues through the skin, if of advantage to the species, would be preserved through this agency, as already discussed in a paper published in the Proc. Zool. Soc. for February, 1873.

The Secretary read a letter he had received from Mr. Ogier Ward, enclosing a drawing of a spider's nest, with some remarks thereon by Mr. Charles O. Waterhouse. Mr. Ward had found the nest attached to some long grass in a quarry near Poissy, on the Seine. Mr. Waterhouse, on examination, found it to be nearly filled with sand, but in the centre he found "a dry, rough, flat piece" attached to the base, which on soaking in water for some hours, he discovered to be filled with a number of minute spiders measuring one-twelfth of an inch. The granules of sand were held together and to the inner-bag by fine threads of web. He believed the object of the sand was to prevent the case being blown away, but he was not aware to what species the nest appertained.

Mr. W. F. Kirby contributed a review of Dr. Boisduval's "Monographie des Agaristidées," published in the 'Revue et Magasin de Zoologie,' 1874, pp. 26—110. He directed attention to the absence, in Dr. Boisduval's arrangement, of the genera *Mania* and *Larunda*, *Hübner*. (*Sematura* and *Coronis*, *auct.*), the former of which has been placed by all authors close to *Nyctalemon*, and at times even included in the genus.

Mr. Butler communicated "Descriptions of three new Species and a new Genus of Diurnal Lepidoptera from the collection of Andrew Swanzy, Esq."

Mr. Charles O. Waterhouse contributed "Notes on Australian Coleoptera, with descriptions of new Species."

The Rev. R. P. Murray communicated "Descriptions of some new Species of Butterflies belonging to the Genus *Lycæna*." He added thereto some remarks on the species furnished with spots on the anal angle of the hind wing, and also on those furnished with tails—neither of which characters he considered sufficient to afford generic distinctions.

November 16, 1874.—J. W. DUNNING, Esq., M.A., F.L.S., Vice-President, in the chair.

*Donations to the Library.*

The following donations were announced, and thanks voted to the donors:—‘The Journal of the Linnean Society,’ Zoology, no. 58; presented by the Society. ‘The Canadian Entomologist,’ vol. vi., no. 9; by the Editor. The ‘Zoologist’ and ‘Newman’s Entomologist’ for November; by the Editor. ‘L’Abeille,’ tome xi., livr. 19; by the Editor.

*Election of Subscribers.*

R. E. Bull, Esq., of 85, Milton-street, Dorset-square; F. Fitch, Esq., of Hadleigh House, Highbury New Town; and H. D’Arcy Power, of 8, Manor-terrace, Camberwell, were elected Subscribers.

*Exhibitions, &c.*

Mr. Higgins exhibited some rare species of Cetoniidæ from Borneo, *viz.* Lomaptera Higginsii, *O. Janson*, and a remarkable Dynastiform insect named by Count Castelnau, Westwoodia Howittii. Also two smaller specimens which had been supposed to be females of the last-named species, but were, more probably, females of an insect of which the male was unknown.

The Secretary exhibited a collection of fine species of Lepidoptera, forwarded by Mr. W. D. Gooch, from Natal, for determination.

The Rev. O. Pickard Cambridge sent a note on the curious spider’s nest exhibited at the last meeting. It was unknown to him, and had it not been for a remark in Mr. Ward’s letter implying that the nest he found belonged to a symmetrical (geometrical) web, he should have conjectured that it was the work of an Agelena. If, however, the nest was appurtenant to a symmetrical web it must belong to a spider of the family Epëirides. He did not think the sand in the nest was at all designed as ballast, but as a protection against the heat of the sun (sand being a non-conductor) and also against parasites. Mr. Smith remarked that the mud-coating of the nest of Agelena brunnea did not preserve that species from parasites, as he had often bred a species of Pezomachus from the nests, and he believed, in those instances, the spider’s eggs had been attacked before the mud-coating was added.

Mr. Champion exhibited some rare species of British Coleoptera, *viz.*:—Apion Ryei, taken by Mr. Lilley in Shetland; Abdera triguttata, from Avienda, Inverness-shire; Lymexylon navale, taken by Messrs. Sidebotham and Chappell at Dunham Park, Manchester; Athous subfuscus, taken by the Rev. T. Blackburn in Shetland; and Apion sanguineum and Silvanus similis from Esher.—*F. G.*

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*A Visit to the Gouliot Caves at Sark.*

By W. R. HUGHES, Esq., F.L.S.

EVER since the British Association met at Birmingham, in the year 1866, when, in the Zoological Section, that able marine naturalist, the Rev. A. Merle Norman, gave a glowing account of an excursion to these celebrated caves, and of the “wonders of the deep” which he saw there, I have cherished a wish that at some time or other I might be able to pay a visit to them. Circumstances prevented the gratification of that wish, until the spring tides succeeding the full moon of August last. It is, I believe, a trite saying that “anticipation is often better than realization,” and to some of us our experience through life, in some instances perhaps, enables us to endorse its accuracy; but the Gouliot Caves at Sark are one of those delightful exceptions to the rule,—one of those fresh and unhackneyed spots in this age of ransack, when even the “depths of the sea” are not proof against the invasions of the dredge,—far exceeding, in fact, what the fancy pictures, and they will, I believe, long continue to delight the eyes of the marine zoologist and enrich his observation. Other pens besides those of the marine naturalist have recorded the wonders of these caves. For instance, in that exquisite book, ‘The Channel Islands,’ by Professor Ansted and Dr. Latham, the former states (p. 73):—“Nowhere in Europe, under the most favourable circumstances, can so great a wealth of animal life be found within a small space, as in some of the Sark caverns.” And again (p. 83):—“Every square inch of surface is covered with living corallines, and in some parts an infinite number of Tubulariæ are seen occupying the walls.” And further (p. 241):—“The great range of the tide, the complicated character and gloom of these vast natural vaults, whose deeper recesses are not accessible more than a few hours in the year, are among the causes of this wealth. They may with truth be regarded as the *grüne Gewölbe* of the Channel Islands. They are green treasure-houses, where, instead of the accumulated stores of mediæval art, such as are lavishly spread out in the chambers so named in Dresden, we find all that is brightest and richest and most varied of Nature’s work.” And the writer of a most interesting article, “A Week’s Imprisonment in Sark,” in the ‘Cornhill Magazine’ for 1861 (p. 542), contributes his rapturous meed of praise to that already stated. He says:—“Fortunately the visitor is not often subjected

to an examination *in situ* as to his knowledge of the names, for the eye even of one most familiar with the aquarium could not fail to be struck with the marvellous wealth and prodigality of Nature in this treasure-house of life. It is chiefly on the walls left by the sea that the animals are seen. They attract by colour as well as by form; the brightest and richest reds, yellows, blues and greens, cover the wet rocks." The term *Gouliot*, according to Dr. Latham, is derived from *goulot* or *goulet*, "a narrow inlet like the neck of a bottle—*Anglice*, the gullet," the term being applied in this instance to the narrow gully-like apertures in the caves, through which the sea rushes with tremendous force. The locality is very remarkable. Much of the wonderful luxuriance of animal life found there is, in my opinion, attributable (1) to the frequent circulation of water, dashed and churned about, as it is everlastingly, in these "gullets," (2) to the heightened local oxygenating effects occasioned thereby, (3) to the constantly renewed stores of myriads of microscopic life brought as food, and (4) to the natural gloomy and secluded character of the caverns. These are points well worthy of notice in these days when we are seeking the most approved form for oxygenating public aquaria: we cannot do better than copy Nature. The Gouliot Rock is detached from Sark, and separated from the adjacent isle of Brechou by a water passage, "deep, dark and dangerous;" the current is, moreover, very swift, and varies with the tide, and, under ordinary circumstances, is at the rate of two miles and a half to three miles an hour. Here is another point worth noting: this "passage" may be looked upon as an immense reservoir, and doubtless acts as such in its interchange with the water dashed through the caves. Not that I infer there is any stagnation in the sea, but that certain parts of it are more highly oxygenated than others, and this appears to me to be eminently the case in the locality I am endeavouring to describe, and is another circumstance accounting for the abundance and beauty of life. The clearness of the sea round the island of Sark is also remarkable: in the Creux Harbour, for instance, at a depth, I suppose, of fifty or sixty feet, the water is perfectly transparent, and the smallest objects may be discerned at the bottom. The speed of the current can also be well witnessed here.

It was, as stated, during the full moon of August last—the last week in the month—that I made my excursion. The weather was very favourable, the sea calm, and the wind south. Nothing could have been more enjoyable than the trip out. I pass over all local

difficulties about hotel accommodation, and merely suggest to any fellow naturalist who wishes to visit the island, the desirability of securing his apartments by letter beforehand. I made another mistake. On the first day of my arrival I took a boat from the harbour, and was mortified, after an hour or so rowing and sailing, to find that I had misjudged the time of low tide, for when I reached the north-west side of the island, the caves were full of water. So the first day's labour was lost. I improved on the second day, and went by way of the road, which is most economical both as to time and money, for half an hour's walking from the harbour will suffice to reach them, and a boat is not necessary. Let me not in the least be supposed to wish to prevent custom from coming to the worthy boatmen of Sark, whose hardiness, civility and attention, have long been conspicuous. I merely mention, for the benefit of fellow naturalists, that the road is the best way of reaching the caverns. The descent from the cliff, which is at least three hundred feet high, is somewhat difficult to one unaccustomed to climbing, as the rock is steep and the path stony, narrow and slippery, but I did not hear of any accidents ever having taken place. There is a local legend that one Juan Rodriguez, a Spaniard, was last seen alive on an abrupt part of the rock about two-thirds of the way down, from whence it is supposed that he committed suicide by leaping over. Hence the spot is termed *Sault de Jehan*—"John's Leap." At this point there are two ways of reaching the shore, the one very precipitous and over rocks covered with slimy *Fucus*, which can only be traversed when the water is out; the other, the most usual route, is through the first cavern, or "Chimney," as it is termed, a long diagonal aperture filled with magnificent boulders fallen from the main rock and piled together in wild grandeur. Professor Ansted says one must visit Sark to know what water will do with granite! Speaking of the origin of these and neighbouring caverns, he says:—"The existence of a fissure in hard rock filled at one time with soft mineral, is the elementary condition. The result is seen in the removal of the soft mineral by the undermining of the sea—the falling in of the unsupported roof, and the rolling about in sea-water of the angular fragments that fall, become rounded, are broken into pebbles, and finally are ground into sand." Over some of the boulders, and under others in this "chimney" the naturalist cautiously picks his way, his mouth watering at the sight of sundry fine specimens of the sea spleenwort

(*Asplenium marinum*) that line some of the crevices of the upper part of the "chimney," very high up, and, from their luxuriance, appearing never to have been rifled even by the most adventurous of collectors. At the foot we enter the upper cave, "giving many a varied view of the small but picturesque 'Havre Gosselin,' seen through the opening at the further extremity." "But this cavern," says Prof. Ansted, "though fine, is as it were a 'mere outer court,' preparing us for the glories to be revealed within." It is not worth mentioning the character of life contained in this upper cave, as it is not numerous and is almost identical with what is found in the interior. There are two ways of entering the interior caverns from this outer court, one almost at right angles with the "chimney," but there is a pool of water in the middle, the depth of which is uncertain, and although it may be exaggerated, it is best, as the cavern is dark, to keep on the right or north side, where there is a curious double porch-like opening in the rock, sufficiently wide to admit a man. Passing through this, and watching the earliest opportunity for the tide to ebb in the little bay, so as to get as much time as possible in this submarine palace, one bends round to the left and enters a long vestibule, with good-sized stones at bottom, on which one steps to avoid the water still lying in the middle, but which will subside with the ebbing tide. Southward from this, opens "Cube" Cave, of wedge-shaped form, and approached by a narrow hole, so low that I received a blow on the head from the top which I did not soon forget. In this cavern the first impression is received of the vast amount of animal life herein contained. One kind of life only appears dominant. It is the hydroid zoophyte, *Tubularia indivisa*. The walls of the cavern are absolutely lined with it, the small horny tubes standing out like *chevaux de frize*, from the openings of which tubes are occasionally seen the lovely heads of scarlet tentacula. Some specimens of *T. Dumortierii* are scattered about. Outwards towards the sea, there is a circular opening called "Wind" Cave, which I was not able to visit, and which I am told is not particularly interesting.

Retracing one's steps, therefore, and pursuing the dark course of the vestibule (as I term it), lighted, as all these caves are, mainly from the sea, the path widens and bifurcates, in consequence of an obstruction from a pillar-like mass of rock, and the *sanctum sanctorum* or "Lower" cave is now reached. And the sensations of even the most indifferent person who is not a naturalist, cannot fail to be other than those of awe and wonder, which, in the latter

individual, as the picture becomes understood, changes to delight. But even this feeling is accompanied by one of strange bewilderment; the subdued light, the dripping roof, the rush of the sea through the gullet-like opening, and its thudding against the rock outside,—but especially the splendour of invertebrate life on the walls,—combine to divert one's attention in so many different ways. Gradually these feelings wear off, and a desire to attack every part of the cavern at once, soon follows. One's ardour in this respect is, however, very soon damped by the nature of the granite, which is hard as adamant, and twisted up my cold chisels, as though they had been strips of lead. The richness of colouring on the walls, which is eminently characteristic of the laminarian zone, as the late Professor Edward Forbes first pointed out, is principally traceable to three classes of marine life,—Sponges, Anemones, and Tunicate Mollusca,—on each of which I have given a few notes. Between the fresco-like patches of these lowly animals, peep out masses of fern-like Zoophytes and Polyzoa, their possession of the space being disputed by stray specimens of the bivalves *Modiola barbata* and *Pecten varius*, and the little echinoderm *Asterina gibbosa*. Among these crept numerous specimens of the grass-green annelid *Phylodoce viridis*. It is difficult to say what colour is predominant, so many are blended together. In one spot it is opaque-white; in another grayish, darkening to slate-colour; then it is rose-pink, deepening on the one hand to scarlet, on the other to crimson: here there are innumerable shades of brown, there many hues of green, then orange, purple, and the most delicate violet. The crimson patches are due to the sponges *Hymeniacidon sanguinea* and *H. caruncula*; and Victor Hugo, in his highly imaginative 'Toilers of the Sea,' aptly compares them to an "abattoir." It is extremely probable that he had in his mind's eye the Gouliot Caves, when he wrote that work, for in the second part, book 1, chapters xi., xii. and xiii., he describes an ideal series of caverns under the sea, that have a singular resemblance in many respects—allowing, of course for the novelist's usual license—to the reality.

The sponges are a remarkable feature of the Gouliot Caves, both as to number of species, and luxuriant growth of individuals. Dr. Bowerbank first pointed out the important fact "that there are some interesting points in the characters of the marine species of the Channel Islands' Fauna, from which it would seem that these shores, and those of the South of Devonshire, are included in

overlapping bands of the British and Mediterranean faunas. At Tenby and on parts of the Devonshire coast are many species of sponges not found further north, but common in the Gouliot Caves and elsewhere in these islands. A similar overlapping takes place in a broad belt extending from about Scarborough to the Scottish border on the east, and from the coast opposite Scarborough to the Hebrides on the west. Here also there is a mixture of the sponges that belong to the northern, with those of the southern, seas, while on either side occur species that do not cross the line."

Dr. Bowerbank was so very kind as to examine microscopically and identify my collection of sponges obtained in the caves. He gives the following as the species, *viz.*:—

Halichondria panicea,	Isodictya pallida,
Hymeniacion lactea,	Grantia compressa,
"    caruncula,	"    ciliata,
"    sanguinea,	Leuconia nivea,
Isodictya elegans,	Leucosolenia coriacea,
"    Peachii,	Leucogypsia Gossei,

and states, "This is a capital list for one locality." He further says:—"Grantia tessellata, Leucosolenia cortorta and Tethea Collingsii also occur there, but you do not appear to have seen them." I was, however, fortunate in taking one species, the third on the list, which appears to be new to the locality, respecting which Dr. Bowerbank writes:—"I have never known Hymeniacion sanguinea so far south as your specimen." This is an additional instance of the "overlapping" before referred to. The colours of the species have a most beautiful effect in the caves; they range from white to cream-colour, from fawn-yellow to orange, various shades of green, and deep blood-red. The crumb-of-bread sponge (*Halichondria panicea*), with its curious volcano-like cones, and the striking Hymeniacion sanguinea of deep blood-red colour, vie with each other for possession of space on some parts of the rock, and in some instances encrust each other; but, as Dr. Johnston ('British Sponges,' p. 11; Edinburgh, 1842), who first noticed the phenomenon, observed, "grew intermingled in such a manner that they had formed a specimen resembling the map of a county, where every riding was coloured white or red, and where the boundaries were too distinctly drawn to admit of any debateable acres on either side."

The wealth of the lower cave in actinoid life is enormous—such as I have never before witnessed on the richest parts of our

southern and western coasts. The species that are dominant are the globe-horn (*Corynactis viridis*) and the sandalled anemone (*Sagartia sphyrodeta*). These are found in profuse abundance, and in almost endless variety. Here is a schedule of the colours that I noticed in *Corynactis*, many of them answering to Mr. Gosse's varieties, *Smaragdina*, *Rhodoprasina*, *Chrysochlorina* and *Corallina*, but there are some which refuse to be classified:—

1. Rose-pink column and white tentacula.
2. " " chocolate "
3. " " dark brown white-tipped tentacula.
4. Fawn " lighter-coloured "
5. Dark orange " dark brown white-tipped "
6. Emerald-green,, rose-pink tentacula, having gold fillet.
7. " " rich brown tentacula.
8. " " gold disk and white-tipped tentacula.

In *Sagartia sphyrodeta* the same extremes of variety were observable from the *var.* *Candida*, with opaque-white disks, to the *var.* *Xanthopis*, where the "disk assumes various shades of yellow, from a pale chrome or lemon-colour to a deep orange or even dull vermilion." These two species admirably illustrate the law that when a species finds the particular conditions suited to its existence, together with abundant food, it becomes dominant, to the exclusion of other species. No other species—although *Dianthus*, *Bellis*, *Viduata*, *Venusta* and *Nivea* are found here—occur in anything like such profusion at these depths. High up above,—thirty feet perhaps,—on all sides of the rock, and marking, almost as exact as a geometrical line could be drawn, the height of the neap tides, were myriads of the common anemone (*Actinia Mesembryanthemum*), also exhibiting many varieties of colour, from crimson and liver-coloured to green, but the *var.* *Rubra* was mostly dominant. They looked like halves of over-ripe plums, or masses of red-currant jelly, and appeared so thick on the rock that scarcely a penny piece could be placed between. The intermediate spaces were filled by barnacles and limpets, so closely covering the surface of the rock that its original character could not be identified. Since my return one of the individuals of *Corynactis viridis* divided in the aquarium "spontaneously" into three distinct animals, which took food at the end of a fortnight, the division being *not* by gemmation, but, as Professor Dana calls it, by "superior budding" or "spontaneous fission," the fission in each instance commencing at the margin of the disk. I do not remember

to have seen this mode of reproduction by this particular genus previously recorded.

It is hardly too much to say that scarcely any animals of the radiate type could exhibit such a mass of lovely and varied colours. Unfortunately, or rather (for the benefit of the future) *fortunately*, they are not readily removable, for the granite on which they are located is so studded with sponges and tunicate Mollusca, in the interstices not occupied by the anemones, that when a mass of rock has been chipped off and placed in the aquarium, unless the former are carefully scraped away, decomposition very soon sets in, and the whole collection suffers.

My friend Mr. A. W. Wills was good enough to go over my collection of Hydrozoa and Polyzoa, and he mounted the best specimens which I exhibited at a "microscopic evening" of the Birmingham Natural History and Microscopical Society. He made out about six genera, those usually found, such as Tubularia, Campanularia, Sertularia, Plumularia, Clytea, &c. The Polyzoa were more numerous, and comprised more than ten genera, the most interesting being Crisia, Crisidia, Canda, Anguinaria, Seruparia, Bugula, Bicellaria, Pedicellina, Bowerbankia, and Farrella. The collection was not, however, a satisfactory one, as about forty-five genera of these two classes are recorded as local in Prof. Ansted's book. Doubtless the time of year was unfavourable for good examples of the Hydrozoa, but there is no reason why I should not have done better with the Polyzoa. Very few Medusæ were seen, and, although the sea was calm, the phenomenon of phosphorescence from Noctiluca was not once observed. The temperature was, however, low at the time.

The Tunicate Mollusca contribute very greatly to the splendour of these caves, and in some instances exceed the area of space occupied by sponges and sea anemones. I found several genera there which puzzled me much, as they were not recorded in Professor Ansted's book, and I hardly believed that they had been overlooked; so I wrote to the Rev. A. Merle Norman, who courteously replied and confirmed my impressions. They comprised Aplidium—fig-like lobes of honey-yellow colour; Sidnyum, what Forbes and Hanley called *S. turbinatum*, but, as Mr. Norman points out, "*not* the Sidnyum of Savigny, but what has been described by the late Joshua Alder, who discovered F. and H.'s mistake, as *Parascidia Forbesii*," of translucent coral-like appearance.

Specially abundant was the lovely *Amarœcium proliferum*, its rich scarlet and orange-coloured strawberry-like masses being conspicuous. *Leptoclinum gelatinosum*, in jelly-like masses, was also there. The well-marked stellate *Botryllus*, of several species, in some instances measuring several inches across, of yellowish gray crust and bluish systems, was represented, as also the less distinctly marked *Botrylloides*, irregular and ramifying in different species from white to purple. There were many species of *Ascidia*, some in transparent pale green masses, and some in currant-like masses. Mr. Norman also informs me that these caves are the typical locality for *Thylacium Normani*, but I do not remember to have met with it.

The ormer or ear-shell, or, locally, ormond (*Haliotis tuberculata*), is a *specialité* of the Channel Islands, and is found, but not very abundantly, in these caves, neither are the specimens large. It must be seen alive to be appreciated: its handsome mother-of-pearl shell is really rivalled in beauty, as Mr. Gwyn Jeffreys justly remarks, by the animal itself, whose mottled body,—where brown, green and white blend agreeably together,—and broad salmon-coloured sole ornamented with fringe-like green tentacula, render it an exquisite object. We had some served at the hotel where we stayed (not of our own procuring, I am happy to say, for I think the legislature ought to interdict, at certain times, the taking of this glorious mollusk), but they were not very palatable, tasting like a compound of turnips and tough veal cutlet. Prof. Ansted states that “the shells were at one time largely exported to Birmingham, to be worked into the *papier maché* manufactures of that town. The iridescent nacre of the shell was used in this way, but seems now not to be required.” My friend Mr. Edward Hodson (of the firm of M‘Callum and Hodson, *papier maché* manufacturers) writes me, in reply to an enquiry on the above subject, “that the ormer is still used for inlaying purposes, but the Japan shell—a much larger shell than the ormer, and of a silvery shade—has taken its place.”

In one of the pools left by the receding tide, in the vestibule, I found a specimen of the poulpe (*Octopus vulgaris*)—or *pieuvre*, as I believe it is sometimes termed in the island. The creature was moving briskly along over some stones, and in this position I captured him by the dorsal part, without giving him an opportunity to grasp my hand. Immediately he became aware of my

intention, he attached himself by the suckers to several large stones, weighing I dare say fourteen pounds or more. I lifted him up, stones and all, into my vasculum, which was partly filled with sea water. Shortly afterwards he had detached himself from the stones, and was adhering firmly in a corner of the vasculum. I frequently dashed out the water and changed it, with the view to cleanse him of shore impurities, without his moving. On one occasion, however, he watched his opportunity, loosed his hold, and was, by the aid of his arms and suckers, over the sides of the vasculum, down on the ground, and making for a crevice of the rock with great rapidity. A very considerable amount of instinct, even for a cephalopod, was displayed in this proceeding: firstly, finding that escape was hopeless, he apparently resigned himself to his fate; then discovering that facility was afforded for escape, he watched the right opportunity, embraced it, and attempted to reach the only spot available for shelter. Poor poulpe! he deserved his liberty, but I had never taken this kind of cuttle before, and the temptation to put him in spirits was great, which was soon done after he had been killed by immersion in fresh water. During this process he discharged a quantity of the characteristic ink, said by Mr. W. A. Lloyd to be only emitted during alarm or ill health. The following extract from a note which I addressed to 'Nature' (vol. ix. p. 363), may be interesting to quote in this place, embodying an observation with reference to this fluid:—

"On a recent visit to the Crystal Palace Aquarium, my friend Mr. Lloyd was good enough to dislodge a cuttle from its place of concealment, and the usual inky discharge followed as the creature shot across the tank. Mr. Lloyd states, in his interesting 'Handbook to the Marine Aquarium,' that 'The ink (which is viscid) does not generally become diffused through the water, as writing ink would be, but is suspended in the water in a kind of compact cloud till it gradually settles down and is dispersed in flakes.' Now I quite think, with Mr. Lloyd, that this being the case it is difficult to perceive how, according to the generally received opinion, its retreat is covered by the ejected cloud. It seems to me more likely that this discharge is to divert the attention of a pursuer,—a dog-fish, for instance,—which would for the moment be startled by the sudden appearance of masses of dark colour in the water, and in the confusion the cuttle makes his escape."

I regard it as a somewhat analogous instance to that where the lapwing feigns lameness, to divert the attention of a person from the neighbourhood of its nest.

The dimensions of my specimen were much more modest than those of the Newfoundland one recently reported (thirty-five feet!), mine being only twenty-one inches across. Each arm bore about

one hundred *pairs* of suckers, or about sixteen hundred suckers altogether! the largest measured one-fourth of an inch in diameter, and they diminished at the extremities to almost microscopic minuteness. "Ah!" said a Sark man who was by, "I wish you would kill all them nasty 'devil-fish' (he had Victor Hugo's name for them quite pat), for they do no end of damage in our lobster-pots." I can quite imagine, from the great muscular development of the octopus, aided by its powerful and numerous suckers and formidable hard and curved beak, that even the stony carapaces of large lobsters and crabs would stand but a poor defence against its attacks. In consequence of the establishment of marine aquaria, the commercial value of octopus (like that of most other things now-a-days) has "gone up," for Mr. Lloyd tells me that as much as £2 is paid for a specimen, delivered alive and in good condition, at the Crystal Palace.

There was a pretty little picture of a different kind in connection with this vestibule, seeming as though the botanical treasures of the island put in a plea not to be overlooked during one's zoological ecstasies. Up above, and pendant from an arch-like surface of the rock, was a fine fern,—the one solitary object in sight,—upon which the rays of the sun were reflected, and which passed through it, lighting up the lovely bright green, as though it had been illuminated from behind. It was too high for me to recognise the species; but I think it was a *Lastrea*. Twice I went back with a stranger who was in the cavern, at the risk of being overtaken by the tide, to look at it, and we mutually agreed that, coming upon it suddenly after the subdued light and gay colours of the lower cavern, it reminded us of a transformation scene in a pantomime—only that it was a great deal more natural!

My examination was limited to three or four days during one spring tide, but it would take very many days thoroughly to explore the treasures of the Gouliot Caverns; and the work can only be done at the extremely low spring tides, and not then unless there is a favourable wind. Although not unfamiliar with parts of our southern and western coasts—especially Tenby, Torquay, Ilfracombe, &c., of the fauna of which one is strongly reminded—all those places fade in comparison with these caverns. Happily several circumstances combine to continue them as inexhaustible heirlooms to gladden the eyes of many future marine naturalists: *firstly*, the physical conditions in which the inhabitants are placed,—protected

as they are from heavy gales, in sheltered positions, always damp and gloomy, and washed by the purest of waters at a mild temperature,—their reproduction and subsequent development suffers but little from adverse circumstances; *secondly*, the inaccessibility of the island of Sark to the ordinary run of tourists, because the visitor, under the most favourable circumstances, unless he has unlimited time at his command, *must* put up with some social abnegations; but the most noteworthy and encouraging circumstance is that but few of the specimens (the madrepores, I am told, have long since disappeared) have any commercial or marketable value, and thus few care to remove them. These, like the sponges, hydroids, tunicates and some anemones, which contribute to the rich and beautiful colouring of the walls, are of little use when taken away; besides the transit is irregular, and as preserved specimens they are a very poor satisfaction, for most of them are evanescent. If it were possible to remove several square yards of the walls of the caverns *in situ*, and maintain their contents in perfect health in a well-regulated aquarium, it would be an exhibition of unparalleled delight to aquarists, and would doubtless clear up many undetermined points in Embryology; but I fear that, even with our present successful aquarium management, this is a dream too fond to be realized.

I omit all reference to the flora of Sark or the natural beauties of the island,—which in some respects are superior to any of the group of the Channel Islands,—because the Editor, who has been very indulgent in allowing this paper to stand over beyond the period promised, will not consider it within the scope of the 'Zoologist;' but no one should visit that island without seeing the charming and picturesque grounds of the Seigneurie, and it is a graceful characteristic not only of the Rev. William Collings, the Seigneur of Sark, but also of other proprietors in the Channel Islands, to permit the public to have free access to their grounds. The gardens of General Huish, in Guernsey, are another noteworthy example, of great beauty and variety, and testify to the liberality and thoughtful kindness of the owner.

Mr. E. Guille, the postmaster at Sark, was good enough to give me some interesting information respecting the local names of the Gouliot Caves, and he furnished me with an original plan drawn by himself, which has served to refresh my memory as to details. Mr. Peter Guille also rendered me assistance.

Walking towards the Creux Harbour one morning, I noticed in the middle of the road a specimen of the old English black rat (*Mus rattus*), once so common with us, but now exterminated by its formidable rival, the so-called Norwegian or brown rat (*Mus decumanus*). Professor Ansted, in his delightful book before referred to, says that it is extinct in Jersey, and very nearly so in Guernsey, where the brown rat is dominant. The black rat is, however, common in Alderney and Herm, and exists in Sark to the exclusion of the brown rat. What is very interesting also is that the two species exist together in the small isle of Brechou immediately adjacent. Taking this latter circumstance into consideration, as the enemy has advanced to the outposts of the stronghold, it is not too much to suppose that the period of existence of the black rat is limited in the island of Sark. The specimen which I noticed, had been killed by a man, with a stick, the night previously. It was an adult male, and an examination showed that it was ill fitted to contend, in the "struggle for existence," with a powerful rival. Altogether the animal was of finer frame and less muscular and compact build than the brown rat. This was especially noticeable in the claws and in the incisor teeth, which were slender as compared with those of the brown rat. The ears were, however, larger than those of the other, but bore many indentations of previous warfare. The hair was of a slaty black colour, long and silken.

On Friday, the 29th of August, I observed a waterspout—an occurrence that possibly does not often present itself in the life of a landsman far removed from "the sound of ocean's mighty swell," although most of us are probably familiar with the phenomenon (caused by the action of atmospheric currents) from description and hearsay. It may be worth recording. The first (for there were two) took place at a quarter past nine in the morning, which was very fine, the sea smooth, and a gentle wind blowing from the south. I was walking in the direction of the Creux du Derrible,\* facing the south, when my attention was directed by my wife to a small but very dark leaden-coloured cloud, which stretched out towards the east and west, and formed a kind of fringe-like mass in an otherwise pure and cloudless sky. From this, at an angle of about forty-five degrees, depended a tubular body, narrowing at

\* Not *Terrible*, as it is sometimes written, but *Derrible*; the latter being derived from an old French word, signifying "a fallen mass of rock."—*W. R. H.*

the lower extremity, of precisely the same colour as the cloud itself, and (to adopt a ready simile) looking very like an enormous elephant's trunk, having apparently walls within. As this mass lowered towards the sea,—and very gently but perceptibly felt about, as it were, for a resting place,—the sea beneath, in an area of many yards (for it was a distance of perhaps four or five miles from land, and most difficult to judge with precision), was violently disturbed, and appeared boiling and whirling at an enormous rate, with flakes of foam flying about the edges of the whirlpool. It was too far off to see the point of union between the uprising and downfalling streams. However, five minutes, and not more, sufficed for the dispersion of the whole, and the fringe-like cloud resumed its appearance. At this time (twenty minutes past nine) four or five well-marked inverted cones formed, and depended from the same cloud, in a westerly direction from the first waterspout. These were in perceptible motion, and their appearance was most interesting. Two moved to a left or easterly direction, and presently fused and became one; the remainder separated and slowly moved in the opposite direction, and united in a similar manner. Then the motion of the one being reversed or stationary, the other met it and the two cones united and became one, and gradually this mass was drawn out until it assumed the tubular shape; a second waterspout was formed and ended in the sea, in much shorter time than the first, at a greater distance and with fainter effect. In three minutes afterwards the whole mass of fringe-like cloud had entirely dispersed. Our impressions on witnessing the unusual phenomenon were that any boat (especially a small one) in the immediate neighbourhood would stand but a poor chance of surviving, and the danger would be increased, if the waterspout occurred in the night. The opinion of the seafaring people of Sark (such as I met) was similar to that of sailors in general, that the occurrence was a "sign" of stormy weather. Most superstitions are founded on a germ of truth, and I found the prognostication in this instance verified. Within five days the calm summer weather gave place to autumnal gales, and on Thursday, the 4th of September, one of those "circular storms" common in the islands visited them. At Jersey, where I was then staying, the gale commenced in the afternoon, and tore off branches of the trees, rooting up others, and causing the fruit in the orchards to fall in perfect showers. Even the blackberries by the roadside fell so thickly as to make quite a dark patch on

the path in places. The sea was very rough, and the sand was blown from the south-west side of the island so violently as to resemble hot ashes falling in one's face. (*Vide* the local papers of this date). The fall of the barometer, and its subsequent rise, was rapid and considerable—nearly an inch in twenty-four hours!

A fish market is always a subject of interest to the marine zoologist. The markets of Guernsey and Jersey will well repay the visitor many a half-hour's attention. That at Guernsey is very fine; indeed it is said to be one of the finest in Europe. The building is about seventy yards long by fourteen or fifteen wide, lofty in proportion, and lighted from above. The fish are displayed on a series of forty slabs or tables of black marble, each six or seven feet long, placed at a slope with means for draining off the water. I noticed several fish that one does not often see, even in a market so well supplied as our own is. In addition to plaice, red mullet and congers, all unusually fine, there was the beautiful sea bream (*Sparus auratus*), with its bold eye, and its flesh-coloured tinge with golden yellow reflections, as its specific name implies. Then there were several species of the wrasse (*Labrus*), blue-striped, olive-green and yellow, called in the islands the "vraic" or rock fish, and very common they are around the islands, among which two or three were conspicuous as the most gorgeous fish of our seas—the male of *Labrus mixtus*. Considering that the wrasses are poor eating, I thought they looked rather out of place, and would be much better adorning our public aquaria! There were also the gar-fish (*Belone vulgaris*) and the sand-eel (*Ammodytes lancea*), which is said to be caught in thousands off the little island of Herm. The horse mackerel (*Scomber trachurus*) was represented, and the lesser spotted dog-fish (*Scyllium canicula*), said to be eaten by the poor among the French in the island. I also noticed among the "shell-fish," the ormer—heaps of the beautiful shells of which, strewed among the kitchen-refuse near the harbour, gave me a feeling of regret. There were some fresh specimens of the common egg-urchin (*Echinus sphaera*) on one of the slabs, but I did not learn that they were used as food.

In the market at Jersey the wrasse made a good show; there was also that beautiful and highly organized marine fish the basse (*Labrax Lupus*), and the rock whiting (*Merlangus carbonarius*), which make such a fine show at the Brighton Aquarium. Among Crustacea, there was the spinous spider-crab (*Maia Squinado*),

going by the Dorsetshire name of "spiders," and calling to mind the famous story of Professor Bell, who saw, in one of the back streets of Poole, near the water-side, a little girl standing by a small table on which was a plate containing two of these crabs, of moderate size, cooked and for sale. On the worthy Professor accosting her with, "Pray do they eat these crabs here?" she replied, with a look of great surprise at his ignorance, "They ben't crabs, sir; them's spiders!" At Jersey I was informed that *Octopus vulgaris* is occasionally exposed for sale in the fish market, but I did not see any specimens; however, oddly enough, one of the first things I read in the 'Times,' on my return home, was an account of a public dinner in connection with the Brighton Aquarium, at which that cephalopod had been served up as a delicacy.

A curious-looking fish (with which I was not familiar), about a foot long, eyes very close together, and seeming almost all tail, was exposed on one of the slabs. I asked its name, and was informed that it was a sword-fish! Although not in the least resembling a *Xiphias*, I thought fourpence (the price asked for it) worth speculating in, to satisfy my curiosity. When I had leisure to examine it, it proved to be a specimen of the *Trachinus Draco*, or greater weever, and the cause of my want of recognition of it was the absence of the first dorsal, which had been cut off, but the opercular spines were intact. It seems, according to Yarrell (*Brit. Fishes*, vol. i. p. 22), that "The French have a police regulation, by which their fishermen are directed to cut off the spines before they expose the fish for sale, and in Spain there is a positive law, by which fishermen incur a penalty if they bring to market any fish whose spines give a bad wound, without taking them off." As many of the laws and customs of the Channel Islands are continental, it is highly probable that the practice alluded to has been imported. I found the fish by no means unpalatable, although it was rather dry, tasting something like red mullet. The following quaint lines of dear old Warwickshire Drayton, quoted by Yarrell, aptly pourtray this somewhat rare and curious fish:—

"The weever, which although his prickles venom be  
By fishers cut away, which buyers seldom see,  
Yet for the fish he bears 'tis not accounted bad."

W. R. HUGHES.

Birmingham, December, 1874.

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*Ornithological Notes from Dartmouth.*

By GERVASE F. MATHÉW, Esq., R.N., F.L.S.

OCTOBER, 1874.

*Gannet*.—1st. Walked this afternoon to the Castle at the entrance of Dartmouth Harbour. It was rough and squally, with a strong wind from the south-west, to seaward a heavy bank of dun-coloured clouds bordered the horizon, and below me the waves were breaking angrily over the black and jagged rocks, throwing foaming jets of spray far up the face of the cliffs. This tempestuous state of weather had driven many species of sea-birds near the land, especially gannets, many of which were flying high above the sea, their snow-white plumage contrasting to great advantage against the sombre hue of the clouds.

*Kittiwake*.—1st. Several of these pretty birds were hawking over the harbour, in company with their far more numerous relatives, the blackheaded gulls.

*Blackheaded Gull and Heron*.—3rd. To-day, while travelling by train, I noticed, in the low-lying meadows between Starcross and Exminster, a great many blackheaded gulls. The weather for the two previous days had been exceedingly rough, with high west and south-westerly gales, accompanied by torrents of rain, causing the dykes which intersect these meadows to overflow their banks and form large pools; and around the margins of these the gulls had congregated. These beautiful birds were a pleasing addition to the landscape, their pure plumage contrasting vividly against the bright green grass and heavy black rain-clouds which still threatened overhead. Besides these little gulls there were a number of herons standing in or by the edges of the pools, and many of them paid no heed to the passing train, but kept their heads deeply buried amongst the feathers of their shoulders, and seemed to be fast asleep.

*Sparrowhawk and Thrush*.—13th. While conversing with a boatman this afternoon, he informed me that a few days ago, when he was at work in his garden, he suddenly heard a scream and rushing noise just over his head, and at the same moment a thrush fell gasping and fluttering among some lettuces almost at his feet. He picked it up at once, but barely had time to look at it when a hawk made a stoop and actually attempted to clutch it as he held

it in his hand, and the man told me the effort was very nearly a successful one, for he was so "taken aback" at the hawk's audacity that he almost let the thrush go. This is boldness with a vengeance, and on the part (I have no doubt) of a sparrowhawk, for it is well known that this species, when in pursuit of its prey, is so blinded with impetuosity that it will not stick at trifles.

*Titmice and Kestrel.*—13th. This afternoon, while I was standing in a field near a quickset-hedge watching a flock of longtailed, cole and marsh titmice feeding, all at once the former, who were on the most exposed branches, uttered a peculiar cry, and scrambled as fast as they were able into the thickest part of the hedge, their example being followed by all the others, and they had scarcely accomplished this when, with a rush, a fine female kestrel came swooping over the hedge, proceeded about a hundred yards, stopped, and commenced to hover. I was surprised the tits were so frightened, for I do not believe they are often molested by this bird. Probably they made a mistake, and imagined their deadly foe, a sparrowhawk, was approaching, for as soon as they saw what it really was they gradually crept out of their hiding-places, and with self-congratulatory twitters recommenced feeding.

#### NOVEMBER.

*Tufted Duck.*—9th. Noticed a couple diving near the Flat-oar Muds, but they were so wild they would not allow me to approach within shot of them.

*Lapwing.*—9th. A flock of thirty-nine feeding on the mud opposite Stoke Gabriel, but the water was so shallow that our boat could not be brought near enough for a very successful shot. Two, however, were mortally wounded, and flew away over the mud towards the bank of the river, where they both fell under a hedge bordering the shingly beach, one apparently quite dead, but the other every now and again flapped its wings and struggled. Almost as soon as they fell a carrion crow alighted by the side of the still living one, and after a few moments a magpie appeared on the scene, and perched on a neighbouring bush, and was presently followed by several more crows, who took up their quarters on some elm trees close at hand and croaked ominously. Meanwhile the boatman, who had taken off his shoes and stockings, was splashing knee-deep through the soft ooze towards the plovers, both of which he succeeded in picking up, otherwise these crows

and magpie would speedily have attacked and made short work of them.

*Common Sandpiper.*—9th. Saw two of these birds to-day. This seems to be unusually late, for they generally leave us by the end of September.

*Missel and Common Thrushes and Blackbird.*—12th. Noticed numbers feeding greedily on haw-berries. I have not as yet, strange to say, seen a single redwing or fieldfare. The former are usually common enough; but the latter, as far as my experience goes, do not visit us in any great numbers unless the weather is severe. I saw both species abundantly in Hertfordshire on the 1st instant, and was told they had arrived a week prior to that. The weather to-day has been bright and fine, but with a bitterly cold easterly wind and freezing hard in the shade.

*Cormorant.*—12th. While standing near the Castle this afternoon I observed one of these birds high in the air, flying down the river towards the entrance of the harbour, on passing which it flew away in the direction of Berry Head. It was such a large, fine-looking old bird that I watched it, and noticed, after it had proceeded for some little distance, it turned back, and I thought it was going up the river again, but instead of doing this it kept flying round in large circles until it had attained a considerable elevation. Sometimes it seemed merely to give a lazy flap or two of its wings, and then soar aloft with outstretched motionless pinions. By-and-bye I noticed it was joined by another of its own species, and these two birds continued to wheel upwards round and round each other until they were nearly out of sight, and looked mere specks against the clear sky. They must have amused themselves in this manner for nearly half an hour, and I was just on the point of walking on (for I found it cold standing), when suddenly one of them closed its wings and fell at a tremendous pace through the air for some distance, performing, apparently, a summersault in its descent, and this manœuvre was immediately followed by its companion, and repeated several times in succession until both birds were only a few feet above the surface of the sea, when they ceased their gambols and flew steadily off in the direction of Berry Head.

*Curlew.*—14th. Saw two this afternoon feeding in a meadow above Dittisham. They are scarce birds in this neighbourhood.

*Gulls.*—15th. Quite mild in comparison to what it has been for the last few days. Noticed numbers of herring and lesser

blackbacked gulls feeding in meadows some distance from the sea.

*Wigeon*.—18th. Shot a young mallard as it was feeding on the mud the Dartmouth side of Dittisham.

*Wood Pigeon*.—19th. A great number of these birds may be seen every day feeding on the banks of the river, just at high-water mark, where they search for acorns which have fallen from the neighbouring trees or have been brought down by the tide. They are in fine condition and capital eating.

*Carrion Crow*.—20th. To-day, just above Dittisham, I observed one of these birds conducting itself in a very stupid manner. The tide was high, and consequently all the hard stony beach was covered, and this crow was in a neighbouring grass field, where it kept continually flying aloft and dropping to the soft turf below what appeared to me to be a mussel. I should have thought such a knowing bird as a crow would not have acted so foolishly, for of course the mussel fell uninjured every time.

*Coot*.—21st. Shot one to-day close to the ship. They are seldom seen on the Dart, although they occur and breed in great numbers on Slapton Lea, about seven miles from here.

*Wigeon*.—26th. A flock of seventeen on the Flat-oar Muds this afternoon, but so wild I could not get within shot of them.

*Teal*.—26th. Shot three out of a flock of twenty off Stoke Gabriel—two ducks and a mallard. The crop of the mallard was crammed almost to bursting with the seeds of *Zostera marina*, while, strange to say, those of the ducks were empty.

*Fieldfare*.—30th. Saw a number to-day, so we may expect severe weather soon.

#### DECEMBER.

*Common Sandpiper*.—3rd. Saw a solitary example on the banks of the river just below Dittisham. It allowed me to approach within twenty yards, when it flew off, uttering its peculiar but well-known cry, and, had it not done so, I should have attempted to shoot it. Possibly this may be one of the pair I noticed on the 9th of last month; but why it has remained with us all this time I cannot imagine. It appeared to be in perfect health, and both ran and flew strongly.

*Osprey*.—7th. This morning, while looking out of one of our ports, I observed a large hawk flying lazily up the river from the

direction of the town towards the ship. At first I thought it was a buzzard, as they are occasionally seen here; but there was something strange in its manner of flight which induced me to watch it attentively, and presently it passed between us and the shore, and not more than fifty yards from where I was standing, and, as it was flying low, its plumage and figure were shown out in strong relief against the wooded hill-side opposite, and to my astonishment, instead of a buzzard, I had no difficulty in recognising a magnificent osprey. It flew on, and was soon lost to sight round the turning of a creek; but a colony of rooks, who were sitting on the trees on the brow of the neighbouring wood, having espied it, immediately and with clamorous cries started off in pursuit, and to avoid them the osprey rose aloft, for I soon perceived it wheeling gracefully in large circles far above the trees, and the rooks, having satisfied themselves in driving it off, returned to their trees in the wood, where they appeared to be highly pleased and extremely garrulous over their victory. The osprey meanwhile rose higher and higher, and at last flew off in a south-westerly direction over the hills.

GERVASE F. MATHEW.

H.M.S. 'Britannia,' Dartmouth,  
December 12, 1874.

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*Notes from Castle Eden.* By Mr. JOHN SCLATER.

(Continued from Zool. S. S. 4070.)

JULY, 1874.

*Grasshopper Warbler.*—Ten years ago I first heard the song of this bird in this neighbourhood; but not until 1870 did I discover any reliable clew to its nesting anywhere near, and now I am glad to say they seem to have obtained a firm footing at least, as this season five pairs have nested near the same place, and, as far as I am aware, will get off unmolested with their broods.

*Yellowhammer.*—I think I have somewhere read that this species is fast decreasing in numbers. I am glad to say that they are plentiful here this season, but they certainly do not appear to be so numerous as in the days of the old-fashioned hedgerows by the roadside; they are now driven to seek the briar and bramble-bushes in more neglected places, and are therefore not so much observed.

*Barn Owl*.—A fine female specimen was brought to me by the woodman, who shot it, not knowing it was in the preserved list, he said, and I am sorry for it, because they are now very scarce here, from what cause I know not: they were common amongst the high white rocks in the Dene, where it was well preserved, but now I do not know of any place it frequents, except the old church tower, near to which this bird was shot.

#### AUGUST.

*Turnstone*.—On the 3rd I obtained a fine adult male of this species. These birds are rarely met with on this part of the coast.

*Dunlin and Ring Plover*.—Plentiful; mostly young birds.

*Whimbrel*.—More common than I have known it here.

*Kittiwake*.—Abundant. On skinning an adult male, shot inland, I found it had swallowed a large piece of that lubricating compound used on the railways: I have often seen the sparrows eating it, and the engine-drivers tell me that the rooks are so fond of it that when the mineral trains are stopped they will fearlessly alight on the wheels and help themselves from the boxes containing it above the axles: this is done by one rook thrusting its bill in under the lid, and holding it up while another rook pulls out the grease.

*Stonechat*.—This species appears to have entirely abandoned this part of the coast. Four years ago a pair had a nest in an old tumbled-down garden wall: I found afterwards that it had been robbed, and since then I have only met with a single individual (an adult male) in September last.

*Common Heron*.—On the 31st a young female brought to me. Almost every year about this time a few stragglers visit a small trout-stream running into the Dene. There is no regular stream running through the Dene now; the channel is generally dry, except in rainy weather, and then the water flows down as black as ink, from the washing of coal-dust into it; indeed this dust and smoke changes the face of all nature here—"nothing is hid from the dirt thereof:" the poor tree creeper, for instance, becomes as black as a little chimney sweep from contact with the smutty trees. The tits, too, may be said to have gone off with the swallows, and other little smutty gentlemen of the same dimensions and manners have taken their place. It is indeed to be lamented that spots like Castle Eden Dene should ever become subject to such a blackening

atmosphere. But to return to the heron: I think I have said enough to show that they would not be likely to choose this place for a permanent residence; but I think they ought to be allowed to pay these visits,—adding, as they do, so much to the scenery of the place,—without forfeiting their lives; for I am sorry to say they are always sure to meet with some swell sportsman, who, being tired with shooting at dogs' heads and men's gaiters, will turn his muzzle to one of these birds, should it cross his path, and add to his fame as a marksman by accidentally bringing it down.

#### SEPTEMBER.

*Wild Duck*.—A young male shot on the 2nd at the mouth of the Dene. Wild ducks are often to be seen passing along the coast, but this, the wigeon, teal, common scoter and pochard are all I have ever been able to obtain.

*Common Tern*.—Very common on the coast just now.

*Great Blackbacked Gull*.—More common than usual.

*Lesser Blackbacked Gull*.—Not so common.

*Herring Gull*.—More common: there are more adult birds amongst these gulls than I have previously seen here.

*Willow Wren*.—29th. I have heard the song of this bird daily for the last six or eight days, always at the same place, and most likely the same bird.

*Brambling*.—On the 30th I saw a large flock of bramblings, which alighted on the trees near the house.

#### OCTOBER.

*Gray Wagtail*.—A fine adult male of this species took up his quarters at the house in an enclosed yard, in the centre of which stands a game-safe: the top of this safe was his resting-place, when he did rest during the day, and where he lodged at night I do not know; but he spent almost all his time in flying at the windows—the attraction, I thought, being the flies running on the inside of the glass. I tried to catch him by putting a fly on a very small hook hung on the outside by very fine gut, all but the fly concealed by cobweb, but it remained untouched. He stayed and passed his time in the same manner for five days, and then disappeared.

*Green Woodpecker*.—I saw one on the 16th, and am told that it has been seen in the neighbourhood for a week. This is only the third I have met with here in fifteen years.

*Purple Sandpiper.*—On the 30th one shot on the beach; there was a company of seven, probably the same family. They are rarely met with on this part of the coast.

JOHN SCLATER.

Castle Eden, Durham.

*Ornithological Notes from Somersetshire.*

By CECIL SMITH, Esq.

I THINK it is quite a year since my last notes appeared in the 'Zoologist,' but during that year there have been so few events worthy of record that I did not trouble you before. Migrants, both summer and winter, came and went about their usual time; the only two exceptions I have noted below.

*Stonechat.*—On the 27th of February I saw in some fields near the sea about Quantox Head an unusual number of stonechats together: these were probably a migratory flock just arrived; if so they were some time earlier than I have generally noticed such arrivals. Of course a good many stay with us all the year, but these generally keep about singly, or at most in pairs.

*Egyptian Goose.*—On the 9th of April Mr. Esdaile, of Cotheleston House, brought me a bird to identify, which had been shot on his pond, where it had been seen staying about for some days. The bird turned out to be an Egyptian goose, but whether it was really a wild bird or only an escape; or a descendant of an escape, is impossible to say. Several years ago a large flock of Egyptian geese, which had been bred in Mr. Esdaile's ponds, were shot down and driven away, as the farmer who rented some grass fields adjoining the pond used to complain of them, saying to his landlord, "Drat them geese! three on 'em do eat as much grass as one sheep;" so that the bird now killed may have been one of the survivors or a descendant of one.

*Siskin and Lesser Redpoll.*—On the 13th of April there was a small flock of siskins and lesser redpolls in some oak trees near the garden: this is rather later than either of these birds usually remain about here.

*Eared Grebe.*—On the 18th of April I received from Mr. Rowe, of Barnstaple, an eared grebe, alive and apparently in a healthy state. It only lived, however, about a week, but during that time it was very lively and very tame. At first I kept it indoors, when

it was most amusing to see it run about the rooms, as hard as it could go, keeping itself perfectly erect on its legs. I never saw it attempt to fly, though it would sometimes flutter its wings when it ran, as if it intended to rise, but it never actually got off the ground. I suppose it either did not get run enough to give it impetus, or it wanted a strong wind to rise against. It would stand, as it ran, very erect on its legs; but I never saw it sitting up with the back part of the tarsus on the ground, as grebes are so frequently figured as doing, and as guillemots and razorbills do. We were obliged to feed it almost entirely on fish, live ones for preference, which it would catch out of a pan of water with great dexterity. If a fish hid under a stone or some bits of weed in the water in the pan, the grebe would either turn him out of his hiding place, or failing that lie in wait for him to come out. It would eat a few other things, such as worms, while it was in the house, would occasionally catch and eat a black beetle, especially if it was put into its water-pan, but did not really care much for anything but fish. It died after I had had it about a week, whether from any injury it received when first taken, or because I could not get it fish enough, I do not quite know. When I skinned it, I could find very little sign of injury, except that some of the ribs seemed squeezed a little out of place. The stomach was not empty, but had a lump of pond-weed in it, which the bird used occasionally to swallow—I suppose for the sake of the insects in it. It was a male bird, in almost complete breeding plumage. While alive the irides were the most brilliant red I ever saw: in figuring the bird it would be very hard to give a correct idea of the brilliant colour of the eyes—to overdo it would be quite impossible.

*Pinkfooted Goose.*—On the 29th of May my pinkfooted geese again brought out a brood of four young ones: they laid five eggs, one of which was addled. In the 'Zoologist' for 1873 (S. S. 3412) I mentioned that these same geese brought out a brood of three, and that one of the three had both the bill—*i. e.* such parts of it as ought to have been pink—and the legs as orange as those of the bean goose: this time two out of the four young have orange legs and beaks, whilst the other two resemble their parents, and have most decided pink legs and beaks. In plumage all three of the orange-legged birds resemble their parents.

*Kite.*—In June, in consequence of a note in 'Land and Water,' stating that a swallowtailed kite had been killed at Coker Wood,

near Yeovil, I wrote to the only birdstuffer in that town for some description of the bird, thinking it might be a mistake: the description I received confirmed my doubt, and since then I have seen the bird at the Taunton Museum, to which it was kindly presented by its owner. It is an undoubted common kite (*Milvus ictinus*), with not the least resemblance to the real swallowtailed kite (*Nauclerus furcatus*). The unceasing efforts of the gamekeepers, however, have nearly succeeded in making our own bird as rare as the American one.

*Baillon's Crake.*—On the 29th of September one of the birdstuffers at Taunton (Mr. Petherick) shot a Baillon's crake at Knap Bridge, not very far from Taunton. I take this opportunity of correcting an error of mine: in the 'Zoologist' for 1870 (S. S. 2386) I recorded a little crake as having been killed near Taunton, instead of a Baillon's crake. Mr. Petherick's is, therefore, the second specimen of this crake killed somewhere near the same place since 1870; and I have no doubt the bird is more common than it is usually supposed to be, not only near Taunton, but in various parts of the county suited to it; but, luckily for itself, its small size and the unpleasantly swampy nature of the ground it frequents, as well as its shy and retiring habits, keep it out of sight.

*Gray Phalarope.*—In October a few gray phalaropes were killed and brought to the different birdstuffers, but there does not seem to have been any unusual flight of them.

*Whitetailed Eagle.*—On the 2nd of November I rode from Linton to Minehead, by way of the small village of Dare, to see an eagle which had been killed some few years ago by Mr. Snow, of that place, in his park just on the borders of this county and Devon, and which has been recorded more than once, in 'Science Gossip,' as a "golden eagle." Being very sceptical, and anxious to judge for myself, as to its identity, I rode round by Dare to see it, and, thanks to the eagle, had a most beautiful ride, which I should otherwise have missed; but golden eagle it certainly was not, being a most unmistakable whitetailed eagle. I do not believe a thoroughly authentic specimen of a golden eagle, killed in a perfectly wild state, exists in either of the four western counties.

*Great Gray Shrike.*—On the 10th of November Mr. Haddon, of Taunton, wrote me word that he had just killed a great gray shrike near Stalford.

*Temminck's Stint.*—On the 12th of December I was requested

by Mr. Petherick, one of the birdstuffers of Taunton, to come to his shop to name a bird for him. I accordingly went there, and found the bird was a Temminck's stint: it had been shot on the 14th of November near North Curry, in the marsh. Though this bird appears to occur more or less plentifully every spring or autumn in the Eastern Counties, it is by no means a common visitor to this county; indeed I do not remember a Somerset specimen being recorded since Colonel Montagu's, which was shot in September, 1805, near the mouth of the Brue, near Bridgwater. Although somewhat later in the autumn than Temminck's stint usually occurs, it had not quite completed its moult, some of the dark summer feathers still remaining on the back; the lighter coloured edges, however, are quite worn away, only the dark centres being left.

*Gannet*.—On the 17th of December, at Bidgood's, I saw a gannet, which had been killed at Hatch Beauchamp, about five miles from Taunton: it was almost in adult plumage—that is to say, had it completed its moult it would have been quite so; as it was, a few dusky feathers remained, mostly on the flanks. The state of moult the bird was in probably led to its capture, as the primaries were very irregular, the first on one side not being half as long as the second, and on the other side the second was only just making its appearance, a gap being left between the first and the third: it must, therefore, with this ragged state of wing, have found it hard to fight against some of the fierce gales we have had lately.

CECIL SMITH.

Bishop's Lydeard, near Taunton.

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**Bones of Ruminants in Medway Saltings.**—I have just obtained a horn of the roebuck, and another of some description of Bos, dug up near here when digging for cement-clay upon our Medway Saltings.

Surface soil	-	-	-	-	-	2½ ft.
Cement-clay	-	-	-	-	-	1½ "
Peat	-	-	-	-	-	1½ "
Cement-clay	-	-	-	-	-	2 "
Peat and remains of forest trees, &c.	-	-	-	-	-	2 "
						—
Total depth	-	-	-	-	-	9½ "

—Walter Prentis; Rainham, December 29, 1874.

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**Exportation of Birds to New Zealand.**—The ship 'Tintern Abbey,' now not far outside the mouth of the Thames, has on board no less than 1130

living birds, *viz.* blackbirds, thrushes, starlings, goldfinches, redpolls, of each 100; hedgesparrows, 150; linnets, 140; goldfinches, 160; yellowhammers, 170; and, lastly, partridges, 110. These birds have been collected with great care and expense by Mr. Bills, son of the gentleman who has in former years achieved such great success in taking cargoes of birds to the Antipodes. The cages are made after patterns suggested by long experience. The partridges are the worst to carry, as they are very nervous birds and beat themselves about at the least provocation. There is always a danger in transporting birds on board ship that they will fly up and hit their heads against the top of the cage. The partridge cages, therefore, are covered over with a roof of soft canvas, which will yield when the birds fly up suddenly against it. The quantity of food required for these various birds during the transport is very considerable. As a sauce to their dinners, and to enable the gizzards to grind the food, no less than two tons of the proper kind of sandy gravel are on board, as well as materials to make German paste, &c. When the birds arrive in New Zealand, they will be let fly under proper authority. There is, we understand, a heavy penalty enforced against shooting at or injuring these birds in New Zealand; and it is hoped that they will do well at the Antipodes. The gratuitous services of these birds is not sufficiently appreciated at home. The New Zealand farmers cannot get on well without them, for they will keep down the insects that ravage the crops. A little bird single-handed would, from his size and build, be able to get at and destroy in a few hours more insects than ten men would in a week. To keep down the insects will be the practical work of the birds in New Zealand, while our friends, by their presence, beautiful plumage, and song, will be reminded of their far-distant home in old England.—‘*Daily News*,’ *January 11, 1875.*

#### **Ornithological and Entomological Interruptions to Telegraphy in India.**

—At a recent session of the Asiatic Society, Mr. L. Schwendler exhibited a crow’s nest, made of pieces of telegraph wire, twisted together in a most ingenious and knowing manner. He said that lately such nests had been frequently found, and that the crows often selected telegraph-posts, between which and the telegraph-wires they built those wire nests, causing what are known as “earth” and “contact,” and interfering with communication. Crows, however, were by no means the only animals interfering, by their domestic arrangements, with overland telegraphy. Wasps build their mud nests in the porcelain insulators, causing, in rain and dew, leakage from the wire to the ground. Birds of prey frequently dropped dead fish and other offal upon the wires, causing contact. These were all frequent sources of temporary interferences with telegraphic communication upon overland lines, and they, combined with many other facts not necessary to mention, seemed to show that it would be a very great advantage to use subterranean telegraphs instead of overland lines.—‘*Scientific American*,’ *August 1, 1874.*

**Wild Fowl in Norfolk.**—During the severe weather in December last several kind of fowl were killed on Breydon and the surrounding marshes, but they were not in such abundance as might have been expected. I received two nice female gadwalls, and have heard of another (also a female), some good pochards, and several goldeneyes (females and young males), mallards, and goosanders: as many as fourteen of the latter were killed by one gunner in a couple of days, but not one adult male amongst them: these, I heard, were sent off to the London market. I received a very small female merganser; the wigeon (locally called "smea") were in the greatest abundance. The above from Yarmouth. I received a good pair of shovelers from Salthouse; also a female of the same from Wells.—*T. E. Gunn; St. Giles-street, Norwich, January 9, 1875.*

**Whitetailed Eagle in Northamptonshire.**—A young whitetailed eagle was caught near Farming Woods (Lord Lyvedon's) on Thursday, January 7th. It had been seen and shot at two days before by a keeper, and proved, on examination, to have a broken thigh. The bird was taken to Lord Lilford's, its thigh set, and it was doing well on the 11th.—*'Field,' January 16, 1875.*

**Merlin in the New Forest.**—A fine female merlin was killed on the 27th of December, whilst in the act of striking at a partridge. It is said to occasionally breed in the New Forest, but does not nest on the ground, as it does in its own recognized northern localities; it here adapts itself to circumstances, and builds its nest in the hole of a tree, or perhaps substitutes an old nest of an owl or some such bird, an account of which is given in Wise's 'New Forest' (pp. 267, 268, foot-note), where other particulars of its nidification may be found. I have never but once seen the bird in the summer months, and that was a male, in the forest.—*G. B. Corbin.*

**Pied Blackbirds near Norwich.**—Several pied blackbirds have been seen or captured during the last few weeks in the surrounding localities. Four specimens have passed through my hands.—*T. E. Gunn; Jan. 11, 1875.*

**Shore Lark near Bideford.**—A correspondent of the 'Field Newspaper' shot a specimen of this bird on Northam Burrows on the 2nd of January, and adds that four specimens only have previously been recorded as having been obtained in Great Britain. This appears to be a mistake. It is certainly a species of rare and uncertain appearance, but I have repeatedly obtained specimens from birdcatchers.—*Edward Newman.*

**Starvation of Kingfishers, &c.**—The kingfishers seem to have suffered rather severely from the effects of the late frosts. As many as a dozen which had been picked up and brought to me seemed mere skeletons,—feathers and bone,—and numerous others fell an easy prey to the many gunners who took advantage of the severe weather to have some "sport." Fieldfares, redwings, starlings, blackbirds, thrushes, larks, and a host of the smaller birds were slaughtered by scores, and so tame were the former that, in the Crescent, in this city, boys actually knocked them down with sticks

and stones. One gunner shot over thirty before breakfast one morning from a hawthorn hedge in Lakenham, where the poor birds had alighted to feed on the berries: they seemed to have such slight regard to the noise of the shooting that they flocked to the hedge almost as fast as the man could load.—*T. E. Gunn; Norwich, January 9, 1875.*

**Swallows and Martins and Fieldfares.**—Some swallows and martins were very late with us—possibly young birds, unable to leave with the main body of migrants. I saw swallows the first few days of December, and on Sunday, the 7th, two martins were flying about the church tower, but they were very silent—not a note was heard from either as they collected the midges. Rather an anomaly, I thought, as a scattered flock of about thirty fieldfares passed over, with their wild “cha, cha”: it certainly was a combination of summer and winter to see martins and fieldfares at the same time and place.—*G. B. Corbin.*

**Capercaille in Nottinghamshire.**—On Tuesday, the 29th of December, two gentlemen from Nottingham (Mr. Brown and Mr. Butler) were shooting a cover near Papplewick Hall, when Mr. Butler fired at and killed a large bird which rose out of some fir trees, and on going to pick it up was very much astonished to find it a capercaille, the grandest of British game-birds: it was a female and in good condition. A few years ago Mr. Webb, of Newstead Abbey, turned out some of these birds, but none had been heard of for two or three years, and how the bird had escaped till now is a mystery. The keepers had seen it once or twice lately, but thought it was a gray hen—a few pairs of which, I am glad to say, may still be found round Mansfield: it is not long since I saw half a dozen feeding in a stubble-field within half a mile of my house.—*J. Whitaker; Rainworth Lodge, near Mansfield.*

**Contents of the Crop of a Capercaille.**—At a late meeting of the Edinburgh Botanical Society, a paper on this subject was read by Mr. Malcolm Dunn, of Dalkeith Palace Gardens. In his communication, Mr. Dunn explained that he had had occasion at various times to examine the crops of these splendid birds, which became extinct in Scotland some fifty years ago, but were re-introduced about twenty years later by Sir William Steuart, of Murthly. The following were the contents of the crop of a large capercailzie, weighing eleven pounds and three quarters, which he had examined in September, 1873:—Two hundred and three points of the shoots of Scotch fir, some of which were fully three inches long and two inches wide; eleven pieces of young wood, one and a half to two and a half inches in length and about one inch in circumference at the thickest part, each with some leaves attached; and fifty-two buds—making in all the enormous number of two hundred and sixty-six shoots and buds of Scotch fir, besides a large handful of single leaves from the same tree, for a single meal of an average-sized bird. The contents of the crop of a smaller bird, weighing nine pounds and a half, examined in April of last year, consisted

almost entirely of young shoots, buds, and leaves of the larch, with the exception of three small pieces of lichen, which, however, had probably been picked off the same tree. This single meal had consisted of five pieces of young shoots, each about an inch in length, nine hundred and eighteen buds with the leaves attached, and an ordinary-sized pocketful of young leaves, the whole being moist and sticking together in small bundles. From the above facts it would be seen that where the capercaillie was numerous, it must do considerable injury to larch and fir plantations, although their food was by no means confined to these species. He (Mr. Dunn) had examined crops which contained (besides larch and Scotch fir) various sorts of berries—junipers, mountain berries, hips and haws, brambles, cranberries, &c., generally mixed with leaves of the same plant, and sometimes with leaves and buds of the birch, hazel and oak, although those of the latter were rarely found. In July and August he had found their crops to contain nothing but the young tops and bloom of heather. A fine specimen of the bird was on the table, as were also glass jars containing the disgorged contents of several crops.—[Communicated by Mr. R. Chambers.]

**Little Bustard near the Lizard.**—The only rare bird that has come under my notice in this district, during the present winter, is the little bustard, which was killed from a field of turnips last week. The bird was in the same state of plumage as all those I have noticed in this westerly district, and which have always occurred in the winter.—*E. H. Rodd; Penzance, December 27, 1874.*

**Little Bustard near Looe, Cornwall.**—A little bustard was shot in the parish of St. Martin's, near Looe, on the 9th of January. I believe it to be a female: it is in excellent winter plumage. Seeing you have a note from Mr. Rodd of a recent occurrence of the little bustard near Penzance, I think it unnecessary to make any remarks on the appearance of so rare a bird, but give an extract from a note I received from the person who was so fortunate as to shoot it:—"I was surprised to see the bird run; it would, I should say, run almost as fast as a pheasant, and at the same time standing perfectly erect. When fairly on the wing it piped similarly to a golden plover, but with longer and louder notes; it did not fly fast, but moved its wings very rapidly."—*Stephen Clogg.*

**Little Bustard in the Isle of Wight.**—As Mr. Henry Jacob, of Royal Cliff, Sandown, with his friend, Mr. Horace Langdale, of Compton Vicarage, were shooting snipes on Hale Farm, on the 2nd instant, they observed a little bustard (*Otis tetrax*) feeding in a turnip-field, and, after flushing it two or three times, managed to secure it. The bird was in winter plumage, and appeared to be an adult female. It has been sent to Mr. Brayley, of Ryde, for preservation.—*'Field,' January 16.*

**Little Bustard at Walton-on-the-Naze.**—During my stay here, since the 24th of December, a pair of the small bustard have been shot on the Walton

Hall estate. A female was killed at Harwich in January, 1823; a second was killed at Little Clacton in the winter of 1824, and a third at Chelmsford.—*Mr. C. T. Townsend, of Ipswich, in a letter to Mr. J. Alfred Lockwood.*

**Little Bustard in Norfolk.**—I have to record the occurrence and capture of a fine adult female specimen of the little bustard in Norfolk. The bird in question came to hand on the 7th of December, from Capt. R. S. Bagge, of Gaywood Hall, King's Lynn, for whose collection it is now being preserved. Capt. Bagge, in reply to my inquiries, kindly informed me it was killed by Mr. Gregory in a field of cole-seed in the parish of Tilney All Saints, West Norfolk, on the 2nd of December. The bird was in good feather and condition. Yarrell (vol. ii. p. 306, 1st ed.) says that the base of the feathers in a great bustard shot in 1838 were of a delicate rose-colour. I do not find any record of the prevalence of this colour in the plumage of the little bustard. In skinning the above-named specimen, I found this delicate rose tint prevailing in the base of its feathers, excepting in those of the head and neck. Although previous authors have apparently failed to notice this fact, or probably passed it over as unimportant, and Yarrell mentions it as though it were a solitary instance, I am of opinion that this colouring is usual in both species. Perhaps some correspondent of the 'Zoologist' who may have an opportunity of examining a bustard in the fresh state will examine it and see if this tint prevails. The following are the markings, dimensions and weight of the specimen under consideration:—Iris deep yellow; legs dull yellowish gray; beak dark horn, dull yellowish at base of both mandibles.

Length, tip of beak to end of tail	- - - -	18 inches.
Extended wings, to tip of each	- - - -	36½ "
Wing, carpal joint to tip	- - - -	10 "
Tibia	- - - -	4 "
Tarsus	- - - -	2¾ "
Middle toe and claw	- - - -	1½ "
Outer	," - - - -	1½ "
Inner	," - - - -	1 "
Tail	- - - -	5 "
Beak—Length	- - - -	1 "
," Width at base	- - - -	⅞ "

Weight, 1lb. 12½ oz.

On dissection, it showed a full ovary of eggs, in size equal to ordinary pins' heads, and its stomach was quite distended with vegetable matter, consisting of leaves of turnip-tops and some herbs. Yarrell assimilates the flavour of the flesh to that of a young hen pheasant: I had the breast of this example roasted, and it reminded me of a mixture of red grouse and pheasant.—*T. E. Gunn; January 9, 1875.*

**The Heron preying on Birds.**—The following instances of a heron catching swift-flying birds on the wing came under my notice during the

recent hard frost. Near Snape, in Suffolk, all the inland waters were more or less frozen over, and the cold was so severe that the blackbirds and thrushes were dying about the roads, while larks and other small birds might almost be caught in the hand. A heron struck down a dunlin as it rose from a ditch, and, having disabled it, was flying off with the unfortunate bird, when a man on the other side of the river, shouting out, caused it to drop its prey, which he secured for himself. On the next day, and near the same place, another—or perhaps the same—heron, while flying slowly along the river bank, suddenly darted at and seized a snipe as it was flying quickly by, and carried it off in triumph. Mr. Johns, in his 'British Birds and their Haunts,' mentions a tame heron which was wont to perch on an old carriage-wheel in the corner of a court-yard, and to lie in wait for sparrows and martins. One of the latter it was seen to pierce while flying, and immediately descending, with outspread wings, to run to its trough, and, having several times plunged in its prey, to swallow it at a gulp.—*Arthur J. Clark-Kennedy; 14, Prince's Gardens, S.W., Jan. 12, 1875.*

**Bitterns in England, Ireland and Wales.**—From the 'Field' and other newspapers we learn that bitterns have repeatedly occurred during the last six weeks in various parts of the kingdom. Two at Stratford-on-Avon; one near York; two in Derbyshire; one in Kent; four in Oxfordshire; two in Lincolnshire; one in Cornwall; thirteen in the county Cork; and five in North Wales. I have again to regret that many of these records are comparatively of little value from the absence of name and address.—*E. Newman.*

**Bitterns in Nottinghamshire.**—Two very fine bitterns were shot during the last week in December, on the side of the Trent at Shelford, near Nottingham, and one was seen near Calverton. One or two of these birds are killed most winters in this county.—*J. Whitaker.*

**Bitterns in Norfolk.**—Four beautiful specimens of the common bittern have recently come to hand, shot in various localities in this county. The first, a female, from Hemsby, on the 5th of December; a male on the 1st of January, in the neighbourhood of Stalham; another male, the same day, from Horning Ferry; and a female near Norwich, on the 8th of January, 1865.—*T. E. Gunn.*

**Brown Snipe near Southport.**—In 1873 I obtained a snipe that I could not identify as a "solitary," the size and markings being quite different. Mr. Nicholas Cooke and the late Mr. Alfred Owen saw it soon after it came into my possession. Upon looking over Gould's book I at once saw what it was. I may add that my old friend Cooper said he once shot a specimen near Carlisle, and the tail being barred so differently from the other snipes led him to suppose what it might be.—*J. B. Hodgkinson; 15, Spring Bank, Preston, January 9, 1875.*

**Gray Phalarope in Nottinghamshire.**—On the 27th of last October, when shooting the Rainworth Water, one of the party shot a nice specimen of the gray phalarope. The bird rose out of the flags on the lake side, almost allowing one of the Clumbers to catch it; in fact, if the dog had not nearly run over it, it would not not have been seen, as five or six barrels shot off within ten yards had failed to make it rise. There were a good many feathers of the summer plumage left on it. This bird has only occurred on two or three occasions in Nottinghamshire.—*J. Whitaker.*

**Guillemot bringing down its Young from the Cliff.**—Whilst on a visit to Flamborough, in August, I witnessed the interesting sight of an old guillemot carrying down its young one from the cliff; this it did almost perpendicularly and with very quick beatings of its wings. My attention was attracted to it by the squeaking, or rather whistling, of the young one, as if it were much afraid, and though I noticed the bird descending in a peculiar manner, and very differently from their usual mode of doing so, I could not clearly see the chick; but as soon as the old bird reached the water it dived, leaving the little one on the surface, and came up again a short distance off, calling its offspring to follow, which it did both by swimming and diving, and it was astonishing how active the little fellow was, diving several yards at a stretch. Now as the old bird and its burthen reached the water within twenty yards of the boat, I had a good opportunity of seeing what took place, though whether the young one was on the back of the parent or in what other position I really cannot say. The young bird was, of course, in the down, quite small, and apparently not many days old. I noticed several similar ones floating dead on the water, which might have fallen off these high cliffs, but more probably the parent birds had been shot.—*H. Boyes; Beverley.*

**The Gannet (*Sula Bassana*).**—These birds generally proceed from their rock, on feeding expeditions, in companies. They invariably pursue their fishing operations *up* the wind, diving now and then, with apparently unerring certainty, as a sealy victim is descried. The bird's favourite height when hawking is about fifteen or twenty yards—sometimes rather more—above the surface, and upon the occurrence of prey the bird becomes for an instant, as it were, transfixed in the air, and in another instant it makes the plunge. While in the act of descent the gannet's wings are *half* distended until within three or four yards of the water, when they instantaneously collapse to admit of the bird entering *cleanly*. Notwithstanding the admirably wedged formation of this impetuous cleaver of the briny, the splash is greater than one would be at first prepared for; but the arresting powers of the bird must be very great from the fact of its *almost never* remaining submerged for longer than four seconds of time. Upon reappearing, cork-like, upon the surface, the gannet pauses for one or two seconds, and then, lazily flapping, it again ascends to continue its super-

marine surveyings. When the gannet has exhausted a certain beat of water and finds its food at tediously long intervals, it checks its up-wind course, and with lazy winnowing and majestic sweep, the bird in a few seconds has harked back to its starting point, again to renew its finny warfare.—*Robert Chambers*; 339, *High-street, Edinburgh, January 15, 1875.*

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**Slow-worm abroad on the 26th of December.**—Whilst most parts of England have been subject to much severe weather, we have here been almost free from cold, so much so that on the 26th of December, 1874, a friend of mine, whilst walking in his garden, saw and captured a small slow-worm (*Anguis fragilis*) whilst basking in the sun. He brought it to me; it was quite active, and very beautiful in its youthful markings.—*Stephen Clogg*; *Looe, January 15, 1875.*

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**Vaagmaer, or Deal-fish, in Ireland.**—A fish of great interest has just been secured by Messrs. Gray and Swanston, of the Belfast Naturalists' Field Club, and is now in the Museum, College-square North. It has been identified by Dr. Cunningham, Professor of Natural History, Queen's College, as the deal-fish (*Trachypterus arcticus*), an inhabitant of northern seas, and only in a very few instances found so far south as British waters. It measures seven feet nine inches, including a tail of only five inches. Its greatest depth is fifteen inches and a quarter, whilst its greatest thickness (which is at the back of the head) is only two inches and a half, and from that point it tapers to the tail. This specimen exceeds by nearly two feet in length the largest example hitherto recorded. It was found washed ashore at Bundoran, on the southern shore of Donegal Bay, and thus attracted the attention of the fishermen. Mr. Patrick Daly, of that place, on being shown the fish, was acute enough to perceive that it was a rarity, and communicated with Mr. William Gray, of Belfast, who, in concert with Mr. W. Swanston, decided on having it brought here at once, being satisfied from the description given by Mr. Daly, that the specimen represented a very rare species, and was of unusual dimensions. On its arrival in town they had it photographed in its fresh condition, and have engaged the well-known skill of Mr. Darragh, in order that it may be permanently preserved. As collections are now being formed in the Museum to represent our local Natural History, we hope this interesting specimen may find a place among them. Mr. Daly deserves the thanks of our naturalists for having so promptly communicated with the Secretary of the Field Club.

[This information is kindly communicated by Mr. A. G. More, of Dublin. The vaagmaer or deal-fish was, I believe, first described by Cuvier and

Valenciennes, in their 'Histoire Naturelle des Poissons' (vol. x. p. 346), under the name of *Trachypterus Bogmarus*. Cuvier, in his 'Règne Animal' (vol. ii. p. 219), considers it to be the *Gymnogaster arcticus* of Brunnich, and refers to 'Soc. des Science de Copenhagen' (vol. iii. p. xiii.), for a description and figure. Dr. Fleming published, at p. 215 of the fourth volume of the 'Magazine of Natural History,' a figure and description of the *vaagmaer*, from mutilated and imperfect specimens taken alive at Sanda, in Orkney. "Various specimens, probably to the number of twelve or more," says Mr. Yarrell, "appear to have been obtained on the island of Sanda, between the years 1817 and 1829. Some of the natives were sufficiently acquainted with the fish to induce a belief that they had even eaten it. Most of the specimens varying in size [probably length] from one to six feet, were driven on shore by bad weather." ('History of British Fishes,' 2nd edition, vol. i. p. 213.) I am not aware of any subsequent record of the occurrence of this curious fish in the British seas until the capture of the Irish specimen above noted, and, therefore, to me it is peculiarly interesting. At the same time I must candidly admit that I possess no summary of the records of such "occurrences," fishes having been almost excluded from our periodical literature in Natural History. I trust a change may be coming over us in this respect.—*Edward Newman.*]

**Teeth of Sharks.**—Reading Mr. Newman's remarks on the interest attaching to the habits of living animals, and the more extended field for their observation now under our command at the different well-appointed vivaria now existing, has stimulated me to propose a question on which I should be glad to have more information, which some of the readers of the 'Zoologist' may be able to give, or if not at present, attention being directed to the subject, some future observation may throw light upon it. Some years ago, whilst working up the "mechanical arrangements and functions of teeth," I was struck by the apparently feeble apparatus arming the mouths of sharks. We read popular accounts of legs being bitten off, and men bitten in two, by these monsters, and on more reliable authority we are told that they surround and devour voraciously the carcasses of the whales left by the whalers. Now the size and power of the teeth, their mode of fixture on the jaws, &c., did not strike me, in comparison with the provisions for those ends in other animals, as adequate to the power required, supposing that the simple closure of the jaws was the mode of appliance; and it occurred to me, whilst looking at the jaw of a shark, that if it seized part of any large body, as the leg of a man or a piece of the flesh of a whale's carcass, and then rotated in some way so that the centre of the mouth was also the centre of motion, a very powerful circular saw would be established,—the teeth arranged inwards, instead of outwards,—quite sufficiently powerful to account for all the terrible stories attributed to the shark's bite. It also occurred to me that perhaps the heterocercal tail might have something to

do in such rotation; but as I suppose many extinct fishes have this form of tail without any similar dental apparatus, this can hardly be a special adaptation. I have kept my eyes open for anything bearing on this idea, and, shortly after forming it, met with the following in Couch's 'British Fishes' (vol. i. p. 28):—"It is the habit of such of the family of sharks as swim high in the water, when they seize their prey, to do it with the action of turning the head and fore parts of the body, which method of proceeding has been supposed to arise from a difficulty that is felt in seizing an object with the mouth in a prone position; but which appears to be adopted only that they may obtain a greater advantage in a rolling motion to cut the object in two parts, or more effectually, with a vibrating action of the head, to separate such a portion as they are prepared to swallow. On a large substance, with their formidable array of teeth, the grasp cannot fail to be successful; but with so slender a bulk as a fisherman's line, it is sometimes otherwise; and when this has escaped the grinding action of the bite, the turning of the body is continued until the whole of the line is twisted round itself, and the fish is thus brought to the surface, even from a depth of forty fathoms." Thus far Couch. I have seen two or three notices of shark fishing in the 'Field,' mentioning the rolling of the fish when caught upon the line, quite corroborative of Couch's observation; but further evidence is desirable.—*F. H. Balkwill*; 8, *Lockyer-street, Plymouth, December 1, 1874.*

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## Proceedings of Scientific Societies.

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### ZOOLOGICAL SOCIETY OF LONDON.

January 5, 1875.—Dr. E. HAMILTON, Vice-President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of December, and called particular attention to a Campbell's monkey (*Cercopithecus Campbellei*), purchased on the 15th of December, and two specimens of *Uromastix Hardwickii* from India, presented by Lieut.-Colonel C. S. Sturt, on the 23rd of December.

A letter was read from Dr. George Bennett, of Sydney, giving an account of an Indian beetle (*Chrysochroa ocellata*), which had been captured alive in the Bay of Bengal, 273 miles from the nearest land, by Captain Payne, of the barque 'William Mansoon.'

A letter was read from Mr. Anderson, of Futtehgurh, giving an account of the eggs and young of the gharial (*Gavialis gangeticus*).

The Secretary read a letter addressed to him by the Marquess of Normanby, Governor of Queensland, announcing that he had forwarded by the ship 'Ramsay,' under the care of Captain Caven, a fine specimen of the Australian cassowary, as a present for the Society's collection.

A communication was read by Mr. A. G. Butler, giving descriptions of thirty-three new species of Sphingidæ in the collection of the British Museum.

A communication was read from Mr. Andrew Anderson, of Futtehgurh, giving corrections of and additions to a previous paper by him on the Raptorial Birds of North-Western India.

A communication was read from Mr. E. L. Layard, H.B.M. Consul for Fiji and Tonga, containing ornithological notes made in the Fijis, together with descriptions of some supposed new species of birds.

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ENTOMOLOGICAL SOCIETY OF LONDON.

December 7, 1874.—SIR SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

*Donations to the Library.*

The following donations were announced, and thanks voted to the donors:—‘Bulletin of the Buffalo Society of Natural Sciences,’ vol. ii., no. 1; presented by the Society. ‘Monthly Reports of the Department of Agriculture,’ for the year 1873; by the Department. ‘A Handbook of the Coleoptera, or Beetles, of Great Britain and Ireland,’ 2 vols.; by the Author, Herbert E. Cox, M.E.S. ‘Le Phylloxera de la vigne, son organisation, ses mœurs, choix des procédés de destruction avec gravures et cartes;’ by the Author, Dr. M. Girard. ‘Descriptions and Natural History of two Insects which brave the dangers of *Sarracenia variolaris*,’ by Chas. V. Riley, M.A., Ph.D.; by the Author. ‘A Monographic Revision and Synopsis of the Trichoptera of the European Fauna,’ by Robert M’Lachlan, F.L.S., &c., part 1; by the Author. ‘L’Abeille,’ livr. 20—22; by the Editor. ‘The Entomologist’s Monthly Magazine’ for December; by the Editors. ‘Newman’s Entomologist’ and ‘The Zoologist’ for December; by the Editor. ‘Thesaurus Entomologicus Oxoniensis,’ parts 3, 4; by the Author, Prof. Westwood. ‘Lettre concernant des calculs trouvés dans les canaux biliaires d’un Cerf-volant femelle (*Lucanus capreolus*),’ par M. V. Audouin; ‘Coleotteri della Sicilia raccolti e possedati da Baldissare Romano;’ by F. Moore, Esq.

*Election of Members.*

Lieut. H. C. Harford, 99th Regt., Charles C. Dupré, Esq., and Owen Wilson, Esq., were balloted for and elected Members; and Major Greenwood, Esq., a Subscriber to the Society.

*Exhibitions, &c.*

Mr. E. A. Fitch exhibited some oak-galls of *Dryocosmus cerriphilus*, *Gir.*, *Aphilothrix globuli*, *Hart.*, *A. albopunctata*, *Schl.*, and *A. callidoma*, *Hart.*,

all described in the October number of the 'Entomologist's Monthly Magazine,' p. 109; together with three curious bud-galls, unknown, from Rayleigh, Essex.

Mr. Champion exhibited an interesting collection of Hemiptera, brought from the Mediterranean by Mr. J. J. Walker. Amongst them were *Trigonosoma Desfontainei*, from Cagliari; *Phyllomorpha laciniata*, from Gibraltar; and *Prionolytus Helfer*, from Tangier.

Prof. Westwood forwarded a letter he had received from Mr. J. F. M. Harris Stone, accompanying a sample of tea imported from Shanghai, infested by a small beetle which proved to be the *Ptinus hololeucus*, an insect belonging to a genus, the species of which feed indifferently on dried vegetable as well as animal matter.

Prof. Westwood also communicated a letter from Prof. Forel, of Lausanne, stating that the *Phylloxera vastatrix* had made its appearance among some vines at Pregny, in the canton of Geneva, which had been introduced from England into the graperies of Baron Rothschild, and that the *Phylloxera* had been discovered in two of his greenhouses, among vines planted in 1869, sufficiently distant from each other to render it improbable that the insect had been communicated one from the other; and he therefore concluded that the disease had been introduced in 1869 from the graperies in England. The vines so attacked had, however, not succumbed to the disease, but were simply rather weaker than those which had not been attacked. He was, therefore, anxious to ascertain whether the vines in the English graperies were less influenced than those out of doors; but none of the Members present were aware of the occurrence of the insect in England out of doors, but that it had hitherto appeared in greenhouses only.

Mr. C. O. Waterhouse communicated the following "Synonymical Notes on Longicorn Coleoptera:"—

"Fam. PRIONIDÆ.

*Acanthophorus Palinii*, Hope. This species was placed by Mr. Adam White, with doubt, as *Acanthophorus Yolofus* of Dalman, and in Gemminger and Harold's 'Catalogue of Coleoptera' they are placed together without even a doubt. There being, however, in the British Museum a species of *Tithoës* (to which genus *A. Palinii* must now be referred), which I believed to be the true *A. Palinii*, I referred to Prof. Westwood, who kindly sent to me a sketch of Hope's type in the Oxford Museum, confirming my determination, and making it certain that *A. Yolofus* and *A. Palinii* are quite distinct species. *Tithoës Palinii* resembles *T. confinis*, but is shorter; the eyes are much approximated above; the thorax is broadest in front, with the anterior spine strong (much longer than the lateral spine), and very much recurved; the elytra are marked much in the same way, but the

apex of each elytron is less rounded and there is a small tooth at the sutural angle. Length 1 inch 10 lines; width 8 lines. Habitat, Sierra Leone.

*Acanthophorus capensis*, White. This species is correctly placed in that genus, and does not belong to *Tithoës*, as placed in Gemminger's Catalogue.

*Mallodon gnatho*, White. This insect must be placed in Lacordaire's genus *Nothopleurus* (Gen. d. Col. viii. p. 125). As nothing is said by Lacordaire about the form of the mandibles in the description of *N. ebeninus*, it will probably prove to be a species distinct from *M. gnatho*, which has a remarkably large triangular tooth on the upper edge at the base of each mandible. The thorax of *M. gnatho* has parallel sides.

*Tragosoma subcoriaceum*, Hope, female, 1831. The male of this insect was described in 1867 by Mr. Pascoe, under the name *Sarmyds antennatus*.

#### Fam. CERAMBYCIDÆ.

*Eburophora*, White (*Eburigera*, Gemm. & Harold, Cat. p. 2899). This genus should be placed next to *Sophron*, Newm., and *Sophron eburatus*, Pascoe, should be transferred to it.

*Trichoxys flexus*, Chev., 1860 = *Clytus melanotelus*, White, 1855. (Types compared.)

*Anthoboscus figuratus*, Pascoe, 1869 = *Clytanthus marginalis*, Chev., 1863. (Types compared.)

*Anthoboscus leucothyreus*, Pascoe, 1869 = *Clytanthus austerus*, Chev., 1863. (Types compared.)

*Clytanthus oppositus*, Chev., 1863 = *Clytus signaticollis*, Lap. & Gory, but with the pubescence rubbed off the abdomen; it is not a synonym of *C. japonicus*, as suggested by Mr. Bates, Ann. & Mag. Nat. Hist., 1873.

*Clytus Protogenes*, Newman. This is not a synonym of *Chlorophorus annularis*, as placed in Gemminger's Catalogue, but belongs to the genus *Acrocyrta*, with the third and fourth antennal joints (and fifth slightly) spined; it is very closely allied to *Acrocyrta strangaloides* of Pascoe.

*Xylotrechus famelicus*, Pascoe. This species, for which Mr. Pascoe had no locality, is from Borneo.

*Clytus dominula*, White, is a *Xylotrechus*, closely allied to *C. Grayi*, White, and is not a *Rhaphuma*, as placed by Chevrolat.

*Clytus suberuciatus*, White, is a *Calanthemis*.

*Clytus Phidias*, Newman, is not *Xylotrechus australis*, Lap. & Gory, as placed in Gemminger's Catalogue, but it is closely allied.

*Clytus Mouhotii*, Pascoe, 1869 = *Clytus semiluctuosus*, White, 1855.

*Eriphus leucogrammus*, White = *Pœciloderma lineolatum*, White, and belongs rather to this latter genus."—*F. G.*

*Notes on the Natural History of South Africa.*

By R. B. and J. D. S. WOODWARD, of Natal.

A LEARNED writer, speaking of Biography, says that if any one were only to describe faithfully the smallest events of his life, they could not fail to interest the reader. Cannot the same be said of Natural History—that every honest student of Nature must learn something worth noting? Why are White and Waterton always esteemed such delightful naturalists? Not so much from any great scientific knowledge of Natural History as from the reliable accounts they give of the habits of the animals they loved to watch and note. We think that if the humblest amongst us were only to take them as examples, and strive to add some little to our knowledge of animal life, at home or abroad, a great fund of valuable information could be obtained and preserved.

Perhaps less is known of the Natural History of Africa than of any other quarter of the globe. Having lived some years in Natal, and being lovers of Nature in all her aspects, but more particularly of Zoology, we hope to be able to interest the readers of the 'Zoologist' with a few notes and gleanings on the habits of the animals that have come under our notice.

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*The Leopard.*—This animal, the "tiger" of Africa, is still plentiful in the wooded parts of Natal, and preys largely on the small antelopes with which the bush abounds. The Kafirs, and even the Dutch, eat its flesh, which they say is by no means bad—something like beef, although it has a coarser fibre. The leopard, unless wounded, is generally harmless, although when hard pressed for food it has been known to attack and kill an unarmed native passing through the woods at night. Calves and sometimes full-grown cattle are abstracted from their "kraals" or pens, and devoured by these animals at their leisure; but this generally happens in the winter, when game is more difficult of approach—the undergrowth of the bush (mostly annual) being dead, the leopard finds it less easy to steal upon them. Yet this animal is very useful to the planter in destroying large numbers of cane-rats, the pest of the cane and maize fields, and on some estates it is preserved on this

account. The leopard, when taken young, is very easily tamed. A friend of ours has kept two for several years: they are very docile, and will allow the ladies of the family to enter their cages to caress and feed them. They will not, however, permit a stranger to come anywhere near. Last year the female gave birth to two cubs, one of which was devoured by the male, but the other is still living and thriving well. The owner gives the full-grown animals a fowl or a small piece of meat daily, and as much porridge as they like to eat. Speaking of tame leopards reminds us that our father when in India kept two chetahs (*Gueparda jubata*), which were so tame that they followed him about like dogs, and he was sorry afterwards to have to part with them, owing to complaints made by visitors.

Every pair of leopards seem to have their own tract of hunting ground, in which they will allow none of their own species to trespass. They even drive off their own young, after they have attained a certain age, to seek for new preserves for themselves. There are still a pair of these animals inhabiting an extensive bush in our place on the river Ifasa, and we often hear them roaring in the night. Sometimes they approach very near the house. One night, shortly after settling here, we were awakened by the loud neighing of a horse that was prancing around the house, and the next morning were astonished to find that he had been chased by a leopard, the foot-prints of which were plainly marked. Shortly after this we shot a fine half-grown specimen; it was discovered by our dogs, from which it defended itself bravely, growling and spitting at them like a cat: we stuffed and mounted it.

The natives use the skin of the leopard to scare off the monkeys from their plots of "mealies," as the Indian corn is called here. The leopard is easily destroyed by poison: a small quantity of strychnine, about two grains, is inserted in a dead fowl or buck and placed near their haunts. The skin of a poisoned animal is said to be of no use: if this is the case, it would be a drawback to this way of killing them, as their skins are of considerable value.

It is the great ambition of the hunting Kafirs to kill a leopard, and the man who is lucky enough to do so makes a necklace of the claws and teeth, which he wears with great pride as a proof of his prowess; he also invites his friends to taste the heart, the

smallest portion of which is supposed by them to increase the strength and bravery of the eater.

*The Porcupine* (*Hystrix cristatus*).—This curious animal is too well known to need any description. It is common in many parts of South Africa. One of the most remarkable peculiarities of this beast is the *rattle* which it possesses in lieu of a tail: this is composed of hollow quills, varying from an inch to three inches in length, which the porcupine shakes when roused, making a loud noise. Travelling along the open feldt by night, your horse is sometimes startled and rendered unmanageable by the sudden sound of the extraordinary rattle under its very feet. It is supposed by some that the power of producing this sound is given to the porcupine in place of a voice to call its mate: this is probably the case, as it seems to be able to emit no other sound, but that of a low grunt. This animal, although well able to burrow its own home, seems to live principally in the deserted holes of the ant-bear [? *Orycteropus capensis*—Ed.]. It travels a long way in search of food, living on a variety of roots that grow in the bush; it also does considerable damage to gardens in its vicinity. The flesh of the porcupine is good eating—not unlike young pork. Although not swift of foot, it is not often caught, as few dogs will attack it, experience having taught them the formidable nature of its quills. There is no doubt a considerable amount of power in these quills, as the wounds they inflict are very painful and apt to inflame. In the spring of 1872 we obtained a porcupine about a month old: it had been caught in a string noose, and we have kept it in confinement ever since. It has grown into a fine animal, about four feet long, and when its quills are erected it stands fully two feet high. For some time we kept it chained with a collar round its neck; but it seems to be more comfortable in its new house, which we were obliged to surround with zinc to prevent it from eating its way out, as it can gnaw through the hardest wood with astonishing rapidity. It is an extremely tame animal, and will take food from the hand. We feed it chiefly on sweet potatoes and maize, but it will eat most of the vegetables in the garden. It is quite a mistake to suppose that the porcupine has the power of shooting off its quills at will: it cannot do this, but when angry it often shakes its loose quills, and by running against the object which has irritated it, sometimes leaves them sticking there.

*The Bald or Sea Eagle* (*Haliaëtus vocifer*).—This noble bird

seems to be scattered all over the world;\* the naturalist will meet with it whether travelling in Europe, Asia, Africa or America. It does not confine itself to the sea-coast, but is found far up the river; anywhere, in short, where its favourite food—fish—can be obtained. In size it is not quite so large as the imperial eagle: the colour is nearly all white, with the exception of the wings and back, which are nearly black; the thighs and belly are of a deep brick-red. In January, 1872, a pair of sea eagles visited our neighbourhood: one of them alighted on a tree overhanging a small lake, through which the river Ifafa flows. We sent a native down to shoot it; he fortunately only maimed the bird, whose right wing we found considerably shattered. It was very savage when taken, lying on its back, with its claws extended, defying the Kafir, who was afraid to go near it. With some difficulty we secured the eagle, and having taken it home amputated the broken wing: it soon recovered and became very tame, and being chained to a perch by one of its wings remained in the verandah of our house until its death, which did not happen until nearly two years afterwards. We used generally to feed it on raw meat, but sometimes managed to procure fish: the latter it always preferred to any other kind of food. During the whole time we had this eagle in captivity, its mate continued to haunt the river; and we frequently observed it flying high overhead uttering its loud peculiar cry, to which our bird always responded. The only trouble we had with this eagle arose from its propensity to kill the poultry—any unfortunate fowl happening to come within reach of its chain was sure to be devoured. It died very suddenly, and was, we believe, poisoned by the natives for the sake of its heart, which they hold in high estimation as a love charm. We have not yet been able to discover where these birds breed, but the Kafirs say they make a large nest of sticks, in which they lay two white eggs, of the size of those of a goose. Speaking one day to a gentleman ignorant of Ornithology about the birds of this

\* I think the geographical range of this species is not so extensive as my correspondents suppose. Andersson pointedly excludes it from the Avifauna of Damara-land, not simply by omission, but saying:—"This very handsome species is not an inhabitant of either Damara or Great Namaqua Land, but is tolerably common in the Lake-region and its water-sheds, and also along the course of the Okavango." Mr. Gurney, the able editor of Andersson's work, adds, "I have not personally examined a Damara specimen." If therefore this eagle is not known in a district so comparatively near as Damara-land, we can hardly suppose it to possess so extensive a range as indicated above.—*E. N.*

country, he greatly surprised us by saying that our largest "kingfisher" was as big as a turkey, but on further inquiry we found that he referred to this eagle, which, on account of its dexterity in catching fish, he supposed to be a kingfisher.

We have watched the sea eagle with great interest capturing its prey. Being possessed of a wonderful power of vision, it can, while flying high overhead, distinguish a fish rise to the surface of the water, and, darting down with inconceivable rapidity in an almost perpendicular line, it seizes the fish in its claws before it has time to escape: in performing this feat it does not even wet its plumage. There is no doubt that the sea eagle will kill and devour small animals, such as the hare and blue-buck, when pressed for food.

*Eagle Owl* (*Bubo capensis*).<sup>\*</sup>—The general colour of this large owl is brown, beautifully mottled with orange; the eyes are of a bright golden yellow, very large and brilliant. It is about twenty-four inches in length, and is the largest owl known. This species is pretty largely scattered over the Old World, and if it is identical with the *Bubo virginianus*, is also common in America. In Natal they are frequently met with, where they enliven the woods at night with their loud hooting, which can be distinguished from that of the three smaller species found here. Although by day it confines itself to the densest parts of the bush, it may often be seen of a moonlight night out in the open plains hunting for the jumping hare [*Helamys capensis*—Ed.], which seems to be the largest animal on which it preys: like other owls, it is fond of rats and mice. It usually lays from two to four eggs, which it places in a hole of a cliff or steep bank, where it makes a nest of sticks like that of a hawk; but before the young are hatched there is a pretty fair layer of pellets ejected by the sitting bird, and this forms a soft bed for the little ones.

In June, 1873, we obtained a fine female owl along with its half-fledged young one. We gave the old owl to a friend, but being very wild it soon contrived to make its escape. The young one we have had ever since: it is very tame, and has been fully

\* I incline to suppose this bird to be the spotted eagle owl (*Bubo maculosus*) of Vieillot, and of Layard's Catalogue, No. 50, and not the *Otus capensis* of authors, *Phasmaptynx capensis* of Gray's 'Hand-List of Birds,' No. 553. I trust no reader will suspect me of a desire to intermeddle with bird-nomenclature, but the two species of owl known as *Maculosus* and *Capensis* are extremely different, and I think, from the comparison with *Bubo virginianus*, the former is intended.—*E. N.*

grown for some time past. It often hoots as loud as its wild relations. On first getting this bird we put it into a cage along with two small owls, but as it gradually increased in size it exhibited less respect for them, pecking and bullying them in such a manner that we had to remove them to save their lives. We generally feed it on meat, but it is very fond of living mice and chickens.

Owls are by no means favourite birds with the generality of mankind; not only savages, but civilized beings hold them in superstitious dread, and listen to the sound of their voice with disgust. We hope this does not apply to any true lover of Nature, to whom all natural sounds ought to be pleasing. Many of the notes of the owl resemble the cooing of doves, and we think agreeably break the silence of the night.

*Snakes, Boas, Pythons and Imambas.*—These formidable reptiles are all found in Natal. The two former are comparatively harmless, owing to their having no poisonous fangs. Last year we found a boa's nest, with no less than forty large leathery eggs, about three inches in length by two in thickness: they were laid in a large hole on the side of a hill. The snake was sitting at the time we discovered the nest: a few blows with a stick stunned it; it measured nearly fifteen feet. By the help of some natives we had it taken down to our place, where we kept it chained for some days; but although it seemed to recover from the effects of its wounds it refused all food, and we had to kill it. The boa would have been an interesting study if we could have managed to tame it. We destroyed all the eggs, with the exception of a few, which we preserved by filling them with cotton: this destruction was a great boon to the neighbourhood, where these snakes kill enormous numbers of bush antelopes and other game. Boas have been found in Natal twenty-five feet in length, and pythons—which are closely allied—nearly as long. The largest animal, we believe, these snakes will devour is the large red "inkonka," or bush-buck, which sometimes weighs as much as two hundred pounds, and equals in bulk a good-sized calf.

The snake we consider most to be dreaded in this country is a large reptile called by the Kafirs "imamba." It grows to about the same size as the python, but, unlike that, is very poisonous. There are two species, one nearly black and the other of a bright green colour. It has been said that a man on horseback cannot

escape the imamba if riding on an open country; certainly its movements are wonderfully rapid. One day Mr. D. Woodward on going quickly down a hill, suddenly stopped on hearing a loud hiss proceeding from a bush to his right, when he saw a full-grown imamba dart out from the bush in front of him; fortunately it missed its object, and so great was the impetus of its movements that it could not draw up again until it had gone nearly across a five-acre field. On ascending a hill on the other side of the valley he nearly trod upon another imamba, probably its mate, gliding across the path. Another day, on dining at a friend's house, we saw one of these great reptiles pass by the dining-room window and enter the open window of the bed-room adjoining: on going into the room we found the snake quietly coiled up under the dressing-table. With some difficulty we despatched it with knives used for clearing bush, although it made several vigorous efforts to strike at us with its fangs. It measured eleven feet in length.

Mr. B., the clergyman of the district, describes a fight he had with an imamba in his house: he says that on going into one of his rooms, which was nearly filled with a long table, he was horrified to discover a large black reptile occupying one of the corners. This being a highly dangerous visitor, owing to there being children in the house, he immediately took steps to destroy it. The weapon that came readiest to hand happened to be the handle of an old broom. Thus armed he commenced the assault: at first the table seemed to suffer most, the reptile dodging every blow aimed at it by the reverend gentlemen by sheltering its head under the table. At last a lucky blow broke its spine, when of course it was easily disposed of.

Lately when we were riding by a short path to the neighbouring village of Umsginto), an imamba got up in a narrow part of the road and refused to let us pass, displaying its forked tongue and hissing loudly whenever the horse attempted to do so. After a few moments, during which we had an excellent opportunity of admiring the beauty of its colour as exhibited in the sunshine, it moved majestically into the adjacent thicket.

The natives have no antidote for the bite of the imamba, and if any one among them has the misfortune to get bitten, he is immediately given up for lost, without any attempt being made to recover him. "Eau de luce," or spirits of ammonia, seems to be an effectual remedy if administered in time. In most instances

death occurs within an hour after the bite. An acquaintance of ours was bitten by one of these snakes some years ago, but he was fortunately saved by his friends dosing him with a large quantity of rum. It is generally supposed that if the patient can only be made drunk there is no further danger. The effect of the bite is at first torpor, followed by intense excitement and raving.

Pythons are very fond of water: we have often seen them sunning themselves on the bank of a river, when on being approached they instantly disappear in the deep water.

*Ibis*.—There are three species of ibis found in Natal. The white or sacred ibis (*Ibis religiosa*) is very rare, only a few specimens having been seen along the coast: we have not yet met with them.

The common ibis is the hatadah (*Tantalus hagedash*),\* which derives its name from its peculiar cry of "ha-ha-hatada," with which it makes the woods resound. It can be heard a long distance off, and harmonizes well with the grand scenery amongst which it dwells. They congregate in large flocks along most of the rivers in Natal: we have seen over a hundred birds roosting on one or two trees overhanging the river of an evening, at which time they can be easily shot. The flesh of the hatadah is excellent eating, and we fear that in time it will become scarce on account of the large numbers that are shot annually. When taken young this ibis can be easily tamed: we have had them walking about the place, quite content, among the poultry, but as they grow old they are apt to wander, unless confined. We fed them on porridge, bread, &c., although in their wild state they live exclusively on animal food, principally locusts. At the breeding season they separate and go in pairs, making a large nest of sticks, in which they lay from three to five eggs. The colour of this bird is dark brown, with green and purple reflections. When plucked it is rather less than a duck in size, but its long neck and wings give it the appearance of a much larger bird.

The green ibis (*Geronticus calvus*). The general colour of this bird is purple; the neck and legs are deep red and destitute of feathers. Like the rest of its tribe, the bill is long and curved: it is of the same size as the former species. In feeding, this bird does not seem to be so cleanly as the hatadah, not even despising carrion: for this reason the flesh is not eaten; but it is very useful

\* Hagedashia Hagedash, *Gray's Hand-List of Birds*.

to the farmer in clearing his land from grubs. It is always seen in the open country, and rarely takes to the bush.

R. B. & J. D. S. WOODWARD.

(To be continued.)

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*The Soko or Doko of Central and South Africa.*

IN Dr. Livingstone's 'Last Journal'\*—that melancholy and fragmentary record of the wanderings of one of our greatest explorers—we find an animal brought under our notice which acquired a mythical celebrity years ago, under a name all but identical with that now in use among the Manyema in South Africa, where the creature seems to be sufficiently abundant to have enabled the natives to become very familiar with its habits. In the long-published accounts of the *Doko* he is supposed a human being, normally inhabiting trees, but often descending to the ground. In Livingstone's narrative the *Soko* is an ape and nothing more; but although he thus loses in importance, he gains in clearness of definition, for no one, after the creature has been seen and handled by a Livingstone, will doubt its existence. It must, I think, occur to every reader of the 'Zoologist' how greatly the Messrs. Woodward, the authors of the paper immediately preceding this, might add to our knowledge of the soko if they would diligently prosecute enquiries respecting this most interesting animal.—*Edward Newman.*

*Dr. Waller's Editorial Note prefixed to the Narrative.*—The subjoined account of the soko—which is in all probability an entirely new species of chimpanzee, and *not* the gorilla—is exceedingly interesting, and no doubt Livingstone had plenty of stories from which to select. Neither Susa nor Chama can identify the soko of Manyema with the gorilla as we have it stuffed in the British Museum. They think, however, that the soko is quite as large and as strong as the gorilla, judging by the specimens [of the gorilla] shown to them, although they could have decided with greater certainty if the natives had not invariably brought in dead sokos disembowelled; as they point out, and as we imagine from Dr. Livingstone's description, the carcass would then appear much less bulky.

\* 'The last Journals of David Livingstone in Central Africa from 1868 to his Death.' Edited by Horace Waller, F.R.G.S.

*Extracts from Dr. Livingstone's Last Journal.*—A soko alive was believed to be a good charm for rain; so one was caught, and the captor had the ends of two fingers and toes bitten off. The soko or gorilla always tries to bite off those parts, and has been known to overpower a young man and leave him without the ends of his fingers and toes. I saw the nest of one; it is a poor contrivance; no more architectural skill shown than in the nest of our cushat dove.—Vol. ii. p. 28.

*Soko Hunting.*—Four gorillas or sokos were killed yesterday: an extensive grass burning forced them out of their usual haunt, and coming on the plain they were speared. They often go erect, but place the hand on the head as if to steady the body. When thus seen the soko is an ungainly beast. The most sentimental young lady would not call him “a dear,” but a bandy-legged, pot-bellied, low-looking villain, without a particle of the gentleman in him. Other animals, especially the antelope, are graceful, and it is pleasant to see them either at rest or in motion: the natives also are well made, lithe and comely to behold, but the soko, if large, would do well to stand for a picture of the Devil. He takes away my appetite by his disgusting bestiality of appearance; his light yellow face shows off his ugly whiskers and faint apology for a beard; the forehead villainously low, with high ears, is well in the background of the great dog-mouth; the teeth are slightly human, but the canines show the beast by their large development. The hands, or rather the fingers, are like those of the natives. The flesh of the feet is yellow, and the eagerness with which the natives devour it leaves the impression that eating sokos was the first stage by which they arrived at being cannibals; they say the flesh is delicious. The soko is represented by some as being exceedingly knowing, successfully stalking men and women at their work, kidnapping children and running up trees with them: he seems to be amused by the sight of the young native in his arms, but comes down when tempted by a bunch of bananas, and as he lifts that, drops the child: the young soko in such a case would cling closely to the arm-pit of the elder. One man was cutting out honey from a tree, and naked, when a soko suddenly appeared and caught him; then let him go: another man was hunting, and missed in his attempt to stab a soko; it seized the spear and broke it, then grappled with the man, who called to his companion, “Soko has caught me!” the soko bit off the ends of his fingers and escaped

unharméd: both men are now alive at Bamarré. The soko is so cunning, and has such sharp eyes, that no one can stalk him in front without being seen—hence when shot it is always in the back; when surrounded by men and nets he is generally speared in the back too, otherwise he is not a very formidable beast; he is nothing, as compared in power of damaging an assailant, to a leopard or a lion, but is more like a man unarmed, for it does not occur to him to use his canine teeth, which are long and formidable. Numbers of them come down in the forest, within a hundred yards of our camp, and would be unknown but for giving tongue, like foxhounds: this is their nearest approach to speech. A man hoeing was stalked by a soko and seized; he roared out, but the soko giggled and grinned, and left him as if he had done it play. A child caught up by a soko is often abused by being pinched and scratched and let fall. The soko kills the leopard occasionally, by seizing both paws and biting them so as to disable them; he then goes up a tree, groans over his wounds and sometimes recovers, while the leopard dies: at other times both soko and leopard die. The lion kills him at once and tears his limbs off, but does not devour him. The soko eats no flesh; small bananas are his dainties, but no maize: his food consists of wild fruits, which abound: one [of these] staféné or Manyuema mamwa is like a large sweet sop, but indifferent in taste and flesh. The soko at times brings forth twins. A very large soko was seen by Mohamad's hunters picking his nails: they tried to stalk him, but he vanished. Some Manyuema think that their buried dead rise as sokos, and one was killed with holes in his ears as if he had been a man [? as if he had worn ear-rings]. He is very strong, and fears guns, but not spears: he never catches women. Sokos collect together and make a drumming noise, some say with hollow trees, then burst forth into loud yells, which are well imitated by the natives' embryotic music. If a man has no spear the soko goes away satisfied, but if wounded he seizes the wrist, lops off the fingers, and spits them out, slaps the cheek of his victim, and bites without breaking the skin: he draws out a spear, but never uses it, and takes some leaves and stuffs them into his wound to staunch the blood: he does not wish an encounter with an armed man. He sees women do him no harm, and never molests them; a man without a spear is nearly as safe from him. They beat hollow trees as drums with their hands, and then scream as music to it;

when men hear them they go to the sokos, but sokos never go to men with hostility. Manyuema say, "Soko is a man, and nothing bad in him." They live in communities of about ten, each having his own female; an intruder from another camp is beaten off with fists and loud yells. If one tries to seize the female of another, he is caught on the ground, and all unite in boxing and biting the offender. A male often carries a child, especially if they are passing from one patch of forest to another over a grassy space; he then gives it to the mother.—*Last Journal*, vol. ii., p. 52.

*Young Soko.*—Katomba presented a young soko or gorilla that had been caught when its mother was killed; she sits eighteen inches high, has fine long black hair all over, which was pretty so long as kept in order by her dam. She is the least mischievous of all the monkey tribe I have ever seen, and seems to know that in me she has a friend, and sits quietly on the mat beside me. In walking, the first thing to be observed is that she does not tread on the palms of her hands, but on the backs of the second line of bones of the hand: in doing this the nails do not touch the ground, nor do the knuckles; she uses the arms thus supported crutch-fashion, and hitches herself along between them: occasionally one hand is put down before the other, and alternates with the feet, or she walks upright and holds up a hand for any one to carry her. If refused, she turns her face down and makes grimaces of the most bitter human weeping, wringing her hands, and sometimes adding a fourth hand or foot to make the appeal more touching. Grass or leaves she draws round her to make a nest, and resents anyone meddling with her property. She is a most friendly little beast, and came up to me at once, making her chirrup of welcome, smelled my clothing, and held out her hand to be shaken. I slapped her palm without offence, though she winced. She began to untie the cord with which she was afterwards bound, with fingers and thumbs, in quite a systematic way, and on being interfered with by a man looked daggers, and screaming tried to beat him with her hands; she was afraid of his stick, and faced him, putting her back to me as a friend. She holds out her hand for people to lift her up and carry her, quite like a spoiled child; then bursts into a passionate cry somewhat like that of a kite, and wrings her hands quite naturally, as if in despair. She eats every thing, covers herself with a mat to sleep, and makes a nest of grass or leaves, and wipes her face with a leaf.—*Id.*, vol. ii. p. 102.

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*Ornithological Notes from North Lincolnshire.*

By JOHN CORDEAUX, Esq.

(Continued from Zool. S. S. 4296.)

## DECEMBER, 1874, AND JANUARY, 1875.

IT is seldom we have two consecutive months exhibiting a greater contrast than the last in 1874 and the first in 1875. December was remarkable for the long-continued frost and snow and the unusually low temperature, being very nearly seven degrees below an average of the last ten years. On the nights of the 28th, 29th and 30th, the thermometer here fell to six degrees above zero, and a few miles from this place, on the hills, to three degrees. This is the greatest amount of cold we have experienced since the memorable winter of 1860-61, when on Christmas Eve the thermometer registered several degrees below zero. At 7.30 on New Year's morning my thermometer on the north side of the house, suspended two feet from the ground, marked only ten degrees above zero. On this morning every tree and bush, to their tiniest and most fragile twig, were decked with a fringe of ice crystals an inch or more in depth: the effect at sunrise was magnificent, and not to be forgotten, as the woods and hedgerows appeared planted with gigantic tree ferns of frosted silver, which Aurora, the rosy-fingered, had touched with the most lovely but evanescent hues, far surpassing, indeed, in rarest beauty and chasteness, anything that art could attempt or imagine.

From December the 8th to the 12th we had immense numbers of various birds in that part of the district immediately contiguous to the Humber. A large proportion of these were arrivals from more northern districts on their journey southward, as they soon left us again. I scarcely ever recollect seeing more wild geese, ducks, plovers, gulls and waders, or large flocks of smaller birds, larks, buntings, &c.

By the 26th all bird life had disappeared in our bleak marshes, even the hardy little snow bunting being unable any longer to pick up a subsistence where everything was buried under a universal thick white carpet. Those birds which did not leave us for more genial climes suffered terribly from cold and scarcity of food. Blackbirds, redwings and thrushes haunted the rough grass on the sides of the more open drains, living on the snails hibernating

amongst the grass roots, but the supply being only limited they shortly got so feeble as to be easily run down and taken by hand. The smaller birds came to the stack and fold yards, and, feeding amicably together, we might see at one time under the rick-sides bramblings, snow buntings, greenfinches, chaffinches, yellow, corn and blackheaded buntings, tree and common sparrows, blackbirds, thrushes, larks and starlings, wrens and waterhens. Snipe were very numerous, and crowded together around the unfrozen springs and small open runlets; latterly they became so lean that I desisted from shooting them. Woodcocks left the covers, and could always be found in some one or other of the narrow deep ditches, at spots where the main under-drain outfalls debouched, a little wet patch remaining unfrozen from the dripping of the tile: when put up they flew a few hundred yards with a feeble and owl-like flight, and then dropped again. The herons were reduced to great extremities, and I several times stood and watched, at only a few yards distance, one with slow and measured tread walking the drains, so tame as to be almost regardless of my presence, and when fairly put up not leaving the drain, but after a flight of a hundred yards or so, again settling. The wild ducks kept their condition better, although they too lost considerably in weight between the early and latter part of the month: the finest, a mallard, I weighed during this period, slightly exceeded three pounds eight ounces, but this was a remarkably fine and fat bird.

On the 29th, 30th, and 31st, when the cold was extreme, hundreds of feeble, worn-out and starved birds succumbed to the weather and were frozen to death, many being frozen on their perches during the night, were found dead under the trees in the plantations, or extended rigid and stiff on the flat boughs of the spruce. I heard of one instance in which as many as fifty larks were found all in a heap in a turnip-field frozen to death: they had apparently collected together for warmth, but had not been able to withstand the intense severity of the night.

The month of January has been a direct contrast to this—mild open weather, with the thermometer standing during the day at fifty-four to fifty-six degrees, and at night at forty-six degrees; the wind generally from south, south-west or west; the air warm, close and heavy. So far, none of the innumerable peewit, golden plover, and other birds which left us in December have returned.

There is a general dearth of all birds, both in the marsh and the higher districts, excepting the insatiable and ubiquitous wood pigeon.

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*Larks.*—December 11. To-day there was an extraordinary migration of these birds to the south: the previous night the frost had been severe, with heavy snow squalls, so that the fields were completely covered before daybreak. In the gray of early morning I saw flock after flock of larks, crossing the fields flying about thirty feet above the ground, sometimes lower, as they had occasionally to rise above the tall hedgerows in their course, dropping again on the other side to their former elevation. These flocks numbered from many hundreds to as few as twenty; their line of flight was always the same,—from N.N.W. to S.S.E.,—a course which would take them southward along the line of the Lincolnshire coast: they continued to pass, with very slight intermissions, in compact flocks, as well as in irregular bodies scarcely to be called flocks, till one o'clock, when I left home. The same day I observed immense flocks of golden plovers passing in the same direction. The larks which remained with us during the severe weather fed almost exclusively on the leaves of the turnip and cole plant.

*Ruff.*—A ruff was shot at Humberstone during the first week in December.

*Green Plover.*—December 15. About this date the peewits to a bird left the district. The bulk of our brownheaded gulls left about the same date.

*Brambling.*—December 26. There was a large flock of male bramblings in the marsh stackyard this morning, feeding in company with many other birds. I shot several examples in very beautiful plumage: some had the head and mantle rich purple-black, with some only of the feathers slightly edged with pale brown; in others this gray-brown was the predominant colour: scarcely two birds, however, were alike.

*Goldfinch.*—Uncommonly numerous during the severe weather; I have seen ten or a dozen, always in pairs, during a morning walk. They principally frequent the tall herbaceous weeds, as *Centaurea nigra* and *Senecio jacobæa*, on the sloping sides of the drains, to the withered seed-cases of which they cling and hang in various

graceful attitudes. These pretty lively finches seem models of connubial attachment—I always find them in pairs, and when one flies forward the other follows. Like the bullfinches they probably remain paired for life.

*Wood Pigeon.*—Enormous flocks frequented the turnip-fields in December: where they come from is a mystery, as they are certainly not natives of this district: many thousands have probably come to us from the north, or even from the Continent.\* I have seen great patches in the turnip-fields resembling a blue-gray sheet spread on the land, from the number of these birds congregated, and throughout a small plantation, two or three acres in extent, every tree-top thickly crowded with them. So far they have not attacked the bulbs, but confined their depredations entirely to the leaf. A few nights since I stood in an open place in a small wood of oak, where the wood pigeons are very fond of roosting, and soon shot eighteen as they came in: their crops were so distended with fragments of turnip-leaf that the birds had a most unnatural and deformed appearance, resembling extreme examples of the variety of tame pigeons known as “pouters.” From their supply of food being practically inexhaustible, they always kept their condition, suffering less than any other bird from the severity of the weather.

*Pinkfooted Goose.*—In the last week in December I got a goose of this species out of thirteen feeding on the young clover plants in a field close to the embankment. I have seen and examined about half-a-dozen others shot in the neighbourhood, also two or three bean geese: our local gunners constantly confound the pink-footed goose with the graylag—the latter now very rarely met with. It is the blue-gray shoulders and rump common to both which leads to the confusion. The pinkfooted goose is the most brightly coloured of any of the geese: it is a lively, active, cleanly-shaped bird, and more easily approachable—hence more frequently shot. The bean goose may very readily be distinguished from it at some distance by its almost uniform dull-brown colour; and at once, when in hand, by its long black bill, broken across the middle with orange-red: the colours of the beak are never so regularly disposed as in the pinkfooted: both these geese vary considerably in the length of their bill; and I am sometimes inclined to suppose there may be a race or variety between the two. I remember many years

\* See my previous notes in the ‘Zoologist’ for January, 1875 (S. S. 4295).

since we rarely came across or obtained examples of the short-billed pinkfoot; *now* it is undoubtedly far more commonly procured. At the time the snow and frost broke up I was returning one evening in a thick fog from "standing flight" for wild duck near an open sheet of water in the marshes, when quite suddenly, and without premonitory warning, a small flight of geese drove almost into my face: they were either bewildered and lost in the fog, not knowing which way to steer, or I may have come upon them suddenly when on the ground; for the moment I was much too astonished to think of my gun—the appalling sough, at such close quarters, of so many big pinions, and the affrighted "honk, honk, honk" of the great fellows as they squandered right and left, were enough for the moment to discompose even the coolest of shots: quickly recovering, I emptied both barrels after the rapidly retreating birds, just as they were disappearing like a gray wraith in the fog. Running quickly to the spot I was met with a little drift of feathers, but no dead or wounded goose either then or on the following morning, when I sent a man to search the field.

*Bittern.*—From the already published accounts in 'The Field' newspaper and various local journals, there appears to have been a remarkable migration of bitterns, east to west, during the severe weather at the close of the year: these frozen-out birds may have come directly across from the swamps and lagoons of Holland. We had four shot here: one in the neighbouring parish of Bradley, by a farmer, during the last week in December, as it rose from an open grip bordering one of the rides in the large wood. A second was killed on the 2nd of January, 1875, in the adjoining parish of Aylesby, from a drain near some rough and uncultivated boggy land—the last haunt of the bittern in this district: the man who shot it told me it fell wounded, and fought fiercely when he attempted to seize it, lunging out with its formidable bill. A third was shot about the same date in the marsh parish of Fulstow. The two latter I examined; one was a male, the second a female, adults in very fine plumage. A fourth, I see from 'The Field' newspaper for January 23, 1875, is reported as obtained early in the month in the parish of Waith, a few miles from Fulstow.

*Eider Duck.*—January 12. Old males in one of the local game-shops are, I see, in breeding plumage. These birds are doubtless brought in from sea in some of the fishing-boats.

*Woodcock*.—This has been the best woodcock season I ever remember in North Lincolnshire. The first flight in the last autumn was composed of the "small red race" or variety—the "large dark gray birds" arriving later in the year.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire.  
January 30, 1875.

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*Ornithological Notes from Norfolk.*

By H. STEVENSON, Esq., F.L.S.

(Continued from S. S. 4294.)

OCTOBER AND NOVEMBER, 1874.

*Birds killed against the Cromer Lighthouse*.—The following very interesting and extraordinary return of birds picked up at the foot of the Cromer Lighthouse (a revolving light) was supplied to Mr. J. H. Gurney by the keeper, Mr. R. Cowben, and shows how much valuable information as to the nocturnal migration of birds might be elicited if "light" keepers, whether ashore or afloat, could be induced to make notes of such occurrences. On the 14th of October seven hundred and twenty-four starlings were caught at the light, and on the 15th one hundred and thirty-one larks, one blackbird and five thrushes. Some years ago a considerable flight of blackbirds was killed against the same lighthouse.

*Abundance of Snipes*.—About the middle of November, and indeed until the severe frost drove them again southwards, our broads and marshes were visited by an immense number of snipes, and in unusually fine condition. On the best snipe grounds I have heard of twenty, thirty, thirty-five and thirty-seven couples being shot in one day, and the number in our markets told the same tale of plenty.

*Little Auk*.—Two specimens brought into Norwich on the 21st picked up somewhere in the county.

DECEMBER.

*Bittern*.—The usual winter arrivals of this species appeared with the first severe weather. On the 5th a female was killed at Hemsby, and on the 7th a male was shot at Ludham. On the 14th the proprietor of Hoveton Broad sprung two from a reed-bed as he was looking for wild-fowl, and though offered a tempting "right and left," he spared them in the hope of their remaining to

breed. About the 16th one was shot at Strumpshaw, and another a week later at Martham.

*Winter Migrants and the Frost.*—With the first heavy fall of snow, about the 11th, I found the usual trays-full of male greenfinches in the market, the only other small birds with them being male house sparrows, as if they also dissolved partnership when on their travels at that particular season. In all parts of the county the unusually large flocks of redwings and fieldfares excited general notice; and these, as the weather increased in severity, seemed to draw closer to the towns and villages, clearing off the berries of every kind, and exhibiting a tameness during the most severe weather which I scarcely ever remember to have witnessed before. The deep snow on the 27th, followed by two or three nights of stinging frost, brought them to our doors and windows, like robins and sparrows, and in front of my house, within ten yards of the public road, I counted sixteen fieldfares on one *Pyracanthus* shrub (nailed up between the windows), greedily devouring the berries or resting with a few attendant redwings on the windowsills or nearest trees, so soon as their hunger was appeased for a time. The same thing occurred within the walls of the city as well as in the suburbs, and whilst many fell victims to boys, cats, and other destructives, the survivors left only when no further food was to be had. Why, in their half-starved condition, they did not pass on southwards, before, I cannot quite understand. One thing was particularly observable: the usually wary fieldfares were more starved than the redwings, and exhibited less fear of passers by. Two fieldfares that I caught and turned into my aviary died in a wretched state of emaciation, though well supplied with cranberries, whilst a redwing taken at the same time was plump and still survives. Redwings sitting in rows on the housetops is not a usual sight. I cannot ascertain that the enormous migration of sky larks said to have been observed on the Lincolnshire coast on the 11th and in Sussex on the 17th was remarked in Norfolk, and the Norwich market has had but a sprinkling of these birds amongst the number of blackbirds, thrushes, fieldfares, &c., hanging in bunches for sale; but on the 20th Mr. Gurney informs me two large flocks of sky larks were observed feeding in some fields at Northrepps, roughly computed at over five hundred birds; and on the morning of the 17th I heard of fifteen hundred being netted by one birdcatcher on a farm at Melbourne, near Royston,

Cambridgeshire,—a distinct flight evidently, by the date, from the “millions” seen passing along the Sussex coast on the same day. In our open districts there seems to have been a sensible decrease in the number of blackbirds and song thrushes observed after the first setting in of the sharp weather, most of them, after despoiling the trees and shrubs of their berries, most likely quitting this county for more southern quarters; but a singular occurrence has come to my knowledge, on authority I can scarcely question, respecting these birds in the exposed parts of West Norfolk, about Westacre. The rabbit-catchers employed on that estate, especially on Massingham Heath and Walton field, where but little shelter is afforded by trees or fences, excused themselves for the small number of rabbits taken during the frost and snow by stating that such numbers of blackbirds and thrushes had sought shelter and died, during the inclement weather, in the burrows that the ferrets “laid up” in these well-stored larders, and could not be induced to work their usual prey. Bramblings do not appear to have visited us in more than their usual numbers; and snow buntings, so abundant in the mild winter of 1873-4, have appeared only in their ordinary winter flocks on the coast or a few stragglers inland. Kingfishers have suffered, as they always do in a prolonged frost, and far too many have found their way to our bird-stuffers’ shops; but amongst the waders I missed in our streets and markets the usual bunches of dunlins exposed for sale, though on Breydon and other waters near the sea the gunners were active and numerous. On the other hand, I have seldom seen so many golden and green plovers as were brought to our game dealers during the frost, and both on the coast and inland I have heard of considerable flocks seen of both species. How these birds subsisted during the deep snow on our open fields and heaths I cannot imagine; but there they were, and on the 22nd of December Mr. Gurney was informed that “innumerable quantities” of both golden and green plovers frequented the fields near the sea at Sherringham. There was a singular dearth of wild-fowl in the Norwich market, at least throughout the hard weather, as if, warned in time, the main body had passed south in advance of the cold, and with the exception of a female merganser and a red-throated diver or two, we had no sea-fowl. A few goldeneyes were seen on Breydon, and two females were shot at Earlham, near Norwich, having sought the springs of the inland streams;

but, although I believe now-a-days a great portion of the fowl killed on our coast is sent direct to London by rail, it is not the first time I have noticed that unusually severe weather setting in *before* Christmas is not nearly so productive of sport to the shore gunners as the sharp frosts of January, and even later dates. I have neither heard of nor seen any wild swans, but on the 29th I bought a pinkfooted goose, killed at Wroxham, which had been shot on the 23rd, and was told that a much larger goose, possibly a bean goose or graylag, had been sent up with it, but this had been purchased and eaten. Of occasional winter visitants there has been an absence of siskins, mealy redpolls, waxwings and hawfinches. A very pretty buff variety of the fieldfare was shot near Norwich during the frost.

*Woodcock*.—Though not a very remarkable season for these birds, they have appeared in some numbers in places. At Swanton Wood some fourteen or fifteen, and I have heard upwards of twenty couples have been shot in a day; and at Hempstead, near Holt, from nine to ten couples. Stragglers have also been found scattered about in many unaccustomed localities.

*Blackthroated Diver*.—A very fine specimen, with a dusky throat and the wings and back barred with black and white, was killed at Horsey Mere, near Yarmouth, on the 22nd.

*Little Bustards in Norfolk, Essex and Cornwall*.—On the 2nd of December a specimen of this rare straggler was shot out of a field of coleseed at Tylney St. Lawrence or Tylney All Saints, adjoining parishes, near Lynn, and was sent to Norwich to be stuffed. It proved to be a female, the eggs about the size of pin's heads, and the stomach contained only a small quantity of vegetable matter. Mr. Hearle Rodd, in the 'Field' newspaper of January 2nd, 1875, records another example as shot in a turnip-field near the Lizard, Cornwall, about the 21st of December (writing on the 28th, he says "last week"), and in the same paper is a notice of two more killed at Walton-on-the-Naze, of which, through the kindness of a correspondent at Ipswich, I am able to supply the following particulars. They were shot from a field of turnips and cabbages, near Walton-on-the-Naze, by Mr. Eagle, of Walton Hall, who sent them on the 29th of December, in a perfectly fresh state, to a birdstuffer at Ipswich, and probably therefore they were killed on the previous day. Mr. Eagle appears to

have shot one in the morning when looking for game, and finding after he reached home that the bird was a rarity, he went back to the same field, where he flushed and killed the second. A third is said to have been seen since in the same neighbourhood. The bodies were eaten, and are said to have been "exceedingly good;" but I do not understand that the sex was determined by dissection. They were, of course, like the others, in full winter plumage. From the appearance of these five birds between the first and last week of December, it seems likely that a small flock alighted somewhere upon our southern coast, and from thence became dispersed.

HENRY STEVENSON.

Norwich, January 22, 1875.

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*Ornithological Notes from Devonshire, Cornwall, &c.*

By JOHN GATCOMBE, Esq.

(Continued from S. S. 4255.)

NOVEMBER, 1874.

- 1st. Observed a peregrine falcon flying over our house from the direction of Mount Edgcumbe.
- 3rd. Remarked an immature black redstart on the rocks under the Plymouth Hoe. This species invariably makes its appearance during the first week of November in our neighbourhood.
- 5th. I saw another black redstart on the Devil's Point, Stonehouse, this morning, and was told of a fine old male having been captured alive by a birdcatcher a few days since, but it could not be tempted to take food.
- 6th. Visited Dartmoor, where I observed very large flocks of fieldfares, apparently just arrived. There were some ravens in the rabbit warrens and a great many magpies on the outskirts of the moor.
- 7th. A Dartford warbler was caught by a birdcatcher at Bovisand, which, strange to say, alighted on one of his limed twigs close to a furze-brake: its stomach contained the remains of flies and minute beetles. Many white and brown owls have lately been trapped and brought to the birdstuffers; the stomachs of the latter named birds contained quantities of the common dung beetle. Observed another black redstart near Stonehouse.
- 10th. Very cold; wind N.E. Flocks of fieldfares and redwings close to the town.

16th. An immature black redstart under the cliffs at Mount Batten, near Plymouth, and another at Stonehouse.

20th. Black redstart at the Long-room Hill, Stonehouse, and an adult male killed near Millbrook, on the Cornish side of the Tamar.

24th. Cormorants very plentiful in the harbour and up our tidal rivers. Many shags, too, are daily to be seen diving near the shore in the Sound. Many sparrowhawks and green woodpeckers have been brought to the birdstuffers within the past week.

27th. A puffin was caught in Millbay—a fine bird, with a full-sized beak, but showing the smoky gray cheeks usual to those captured in winter. There was a black grouse, killed on Dartmoor, in the market to-day.

#### DECEMBER.

1st. Saw two black redstarts, one at the “Long-room,” and the other on the rocks under the Plymouth Citadel.

9th. Two northern divers shot, and several redthroated divers seen in Plymouth Sound after a severe gale. The stomach of one of the northern divers contained two “father lashers,” quite perfect. I am sorry to say that an unusual number of kingfishers have been brought to the birdstuffers lately: one man told me that he had as many as six or seven fresh-killed specimens in the house at the same time.

11th. A glaucous gull and some greater blackbacked gulls in the Sound to-day.

16th. Another northern diver shot. Blackbacked gulls have become very numerous since the cold weather has set in.

17th. Large flocks of siskins have appeared on the alder-bushes by the side of the river Plym: when they are seen in this neighbourhood it is a pretty sure sign of there being severe weather in the North. A greater spotted woodpecker was obtained near Plymouth to-day. The cold weather seems to have somewhat tamed the herons; two were brought to a birdstuffer's on the 21st: the stomach of one contained some very fine trout.

22nd. More siskins seen. Fieldfares very numerous. Some bean geese and another black grouse in the market.

27th. Saw one more black redstart. Several common buzzards have lately been obtained in our woods.

30th. A glaucous gull was killed in the Sound.

31st. Bittern shot near Plymouth, and some mountain finches seen in a garden in Stonehouse.

I omitted to mention in my last notes that when in Somersetshire, in October, I found green woodpeckers and ciril buntings very plentiful a few miles from Bridgwater. The ciril bunting was in song, and I particularly observed its peculiar habit of tossing or throwing back the head every time it uttered its notes.

#### JANUARY, 1875.

1st. I do not remember ever having known fieldfares so plentiful close to the town as they are at the present time. Large flocks of bramblings have also been noticed, and some specimens were actually caught in small gardens in the centre of Stonehouse. Black redstarts may be daily seen in some of the quarries and about the rocks on the coast in our immediate locality. Northern divers are becoming plentiful after the late severe cold and constant gales: I saw one to-day struggling with, apparently, a large bullhead, which it at length succeeded in swallowing: they seem very partial to this species of fish, which I often see brought to the surface when the diver is fishing near the rocks, and I have also frequently found them entire in their stomachs: the pipefish, too, is a favourite morsel.

2nd. Our markets now abound with fieldfares and others of the thrush family, and among these birds might be found bramblings and a few snow buntings—two species generally uncommon in our part of the county. I saw to-day, at a birdstuffer's, a dipper, several brown owls, and a buzzard, all of which had been killed during the past few days. I have observed that dippers sometimes appear in the small streams quite close to the town during severe weather.

3rd. Observed flocks of ducks flying up the river Tamar, and a large number of great blackbacked gulls in the harbour. A great crested grebe—the first I have seen for a long time in Plymouth—was killed to-day: its stomach contained, apparently, fine vegetable fibres and feathers, completely saturated with a dark green fluid, which, however, stained my fingers of a chrome-yellow colour.

6th. Two great blackbacked gulls were killed this morning in the Sound, and I remarked a female goosander in the market. The weather has now become quite mild, and it is really cheering to hear the birds singing so soon after the frost.

9th. Three fine shieldrakes were in the market to-day: this species is rarely met with in this neighbourhood, except during or just after severe weather: the stomachs of these birds were full of very small shells and fine sand. Many coots have lately appeared in the market—another sign of cold weather. During the last few weeks immense flocks of lapwings have visited our estuaries, together with a few knots and redshanks. Another bittern has been killed near Plymouth within the last few days; also some tufted ducks and a lesser spotted woodpecker.

14th. Went to Teignmouth to see a rorqual whale which had been towed on shore by some fishermen, when I observed several northern divers along the coast.

21st. Some fine male pochards in the market, and I examined a large northern diver just killed: there were many spotted feathers among its plumage, just as in summer, but these feathers were not new ones.

22nd. Two more northern divers killed and many others seen in the Sound. Kittiwakes also plentiful.

26th. Little auk shot in the Sound: on examination I found its stomach to contain nothing but three very small dark-coloured shells, quite perfect. This morning I saw a flock of thirty scoters flying from the Tamar across the Sound seawards.

28th. Remarked a flock of wood larks feeding close to the public promenade on the Plymouth Hoe—a rather strange place for them, especially during the present mild weather. Nothing has been seen on our coast of the immense flight of sky larks noticed to have passed Brighton, flying westward, at the beginning of the late cold weather, although I daily watched for them.

JOHN GATCOMBE.

8, Lower Durnford Street, Stonehouse, Plymouth,  
February 9, 1875.

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*Instinct of Birds: Olfactory Power of the Vultures.*

By Captain HENRY HADFIELD.

Dr. BREE, in a letter to the 'Times' of the 28th of December, says—"The question about vultures and their prey was settled for ever by Charles Waterton forty-three years ago: he proved, in the paper referred to, that the vulture will pass within a very short distance of a dead body which is concealed, but not in a state of

putrefaction; and, on the contrary, no sooner does the body become decomposed than vultures from all parts of the compass come down upon it;" and that "Mr. Waterton, speaking from his own knowledge and experience in the tropics, says, 'Vultures, as far as I have been able to observe, do not keep together in a large flock when they are soaring up and down, apparently in quest of a tainted current.'"

I too have had opportunities of observing the habits of vultures (which do not hunt in flocks, though kites frequently do), and though I cannot say that they do not scent carrion at a considerable distance, if lying to windward, I feel confident that they, for the most part, are directed and guided to their quarry by sight, like the kite, buzzard, kestrel, and other species. In proof of this I may refer to my notes on a few of the birds of Southern India (Zool. 5745), wherein is described what came under my notice when deer-stalking, and from which I give an extract:—"As I lay perfectly motionless, the vultures, that had hitherto been eyeing me from a vast height, began gradually to descend, contracting their circular sweeps, till first one, and then another, alighted within a few yards of me." But Dr. Bree says that "the tales of vultures appearing in flocks when a camel lies down exhausted must be taken *cum grano salis*." And Mr. Morris remarks, "I did not mean to say that they would thus come to an animal still living." But why should Dr. Bree and Mr. Morris doubt the vulture's power of giving the *coup de grâce* to the exhausted or dying camel, when we find the raven killing the Shetland pony? many a one, Dr. Saxby tells us, "perishing miserably under its ruthless attacks." That the vultures saw me long before I saw them there can be no question, nor am I in doubt as to their manner of hunting. On leaving their roosting quarters they soar aloft and spread themselves over the face of the country for miles around, still keeping within sight of each other. What may be their range of vision it is hard to say, but we may safely put it at two miles—a moderate calculation, too. As to the number of vultures collected about me, I have no recollection, but say a dozen; a line formed of that number would thus extend a distance of twenty-four miles. The nearest vulture,—*i. e.* at two miles off,—observing a prostrate, death-like form, wings its way towards it, alighting on the ground at no great distance; the next bird, seeing the move, directs its flight accordingly; and so on in succession,

the last, or twelfth, having a distance of twenty-four miles to cover. If chiefly guided by scent, how comes it that vultures soar at such a vast height—so high at times as to be barely discernible to our unaided vision? No! this altitude is gained that they may command a wider range; whereas, if dependent on scent, they would naturally skim the surface of the ground, seeing there is neither man nor beast to shun, on those dreary unfrequented plains, the habitat of antelopes and sand grouse. And as to their “soaring up and down in quest of a tainted current,” I cannot conceive that it would be found some thousand feet from the earth. By Dr. Bree’s own showing, scent lays *low*, for he says, “We can have no doubt but that the wind will carry small particles of scent a considerable distance—quite far enough to be recognised by a dog many miles off.” As to the question having been “settled for ever,” there may be two opinions about that. What mine was forty-seven years ago will be seen by the concluding remark—“What the fate of a poor, sick or wounded creature might have been under similar circumstances, it is easy to conjecture.” And it does not appear, after all, that Mr. Waterton was so well acquainted with the habits of vultures, for he remarks, “as far as I have been able to observe.”

It is said, “No sooner does the body become decomposed than vultures from all parts of the compass come down upon it,” which goes far to prove what I maintain, that they are chiefly guided by sight. That a vulture might “pass within a very short distance of a dead body which is concealed, but not in a state of putrefaction,” is a likely thing to happen; but remove the “just expired mule” from the dense jungle to the open plain, and I will engage to say that “its bones will be picked clean,” and that, too, long before it becomes putrid: if the vulture had to wait for *that* it would get little enough to eat, as the jackal would have bared the bones and gnawed them “clean.”

Of the wonderful power of vision in birds we can have but slight conception, but that it is, in many species, tenfold greater than that of man, there can be no doubt, in proof of which I would refer to my note on the brownheaded gull (Zool. 9165), wherein it is remarked, “Their power of vision is almost incredible, for on throwing overboard small fragments of bread—the merest crumbs—they were instantly descried amid the foam, and pounced on with unerring aim.” The albatross, petrel, and other oceanic birds, will

follow in the wake of ships for days and weeks together, gathering from out the broken water—and that, too, in the roughest sea—the smallest fragments of refuse food cast out from the vessel.

Dr. Bree says that he “agrees with Mr. Morris that we have no proof whatever that insects or other animals see colours as we do.” It is a difficult matter to prove; nevertheless, there is reason to believe that they can and do distinguish colours. Though I am no entomologist I have more than once observed insects flying and creeping about till they discovered some object to settle on, where they could lie *perdu*, the colours matching or blending with their own. Birds do the same; for instance, sand grouse, ptarmigan, woodcock, night hawk, and other species. And nests are concealed by the selection of materials so like in colour to the lichen-covered branch or mossy rock or bank on which they are placed, as to be indistinguishable.

HENRY HADFIELD.

High Cliff, Ventnor, Isle of Wight,  
January 6, 1875.

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**Wild Cat near Ringwood.**—Apropos of remarks in the ‘Zoologist’ (S. S. 3482 and 3574) on this subject, I may be allowed to state what has fallen under my notice of late; but I wish merely to state facts and describe the creature whose presence near here has somewhat surprised me, and shall urge no opinion, but leave the question of specific differences and distinctions to those who understand or care to discuss them. On the 24th of December a cat was shot by Colonel Wright, upon his own lands near here, and I saw it almost before it was dead. The description which Colonel Wright gave of its activity is that its movements and agility reminded him much of a squirrel upon the trunks and about the branches of the trees, and this is the more remarkable as it had lost its left hind leg at the knee-joint, and the wound was quite healed; possibly it had been previously trapped, which would account for such a mutilation. The first thing that struck me on seeing it was the shortness of its tail and the general colour and outline of the animal, although I am well aware that the variation with regard to colour is almost without limit in different specimens of our *Felis domesticus*, as indeed is the case with many creatures when brought under domestication. The cat in question measured from its nose to the tip of its tail about two feet four inches, and weighed just over seven pounds; its tail, which was quite perfect, is only eight inches long, and comparatively obtuse and “bushy” when viewed with that of the domestic pet, which Shakespeare designates “a harmless, necessary cat.” Its general colour is an ashy gray, more inclining to brown about the face; a black stripe runs down the spine, and

the sides are marked with black interrupted stripes in a very tigerine fashion; there are also some small zigzag black lines running from between the eyes, over the head, and meeting the spinal stripes just above the shoulders. The tail is ringed with black or blackish brown, and the tip is of the same dark hue. Its throat, breast, belly and feet are white; lips black or nearly so; and its teeth and claws are worthy of any member of the feline race. It is a male, and must, I should say, have been somewhat destructive to the game and rabbits in the locality where it had taken up its abode; but I do not hear that its depredations were noticed, or its presence suspected until Colonel Wright killed it from the branch of a tree. I may state that the locality where it was killed is not a great distance from those celebrated heaths where the local moth, *Eulepia cribrum*, is to be met with, and which neighbourhood is, I know, rather familiar to some of the entomological readers of the 'Zoologist.' Possibly the creature I have been describing is but a descendant of some domestic cat run wild, and a woodland and predatory life had tended to make it, in a popular sense, "a wild cat," yet it will be seen from my description that in one or two points it differs materially from its may-be domestic progenitors.—*G. B. Corbin; Ringwood, Hants.*

**Wild Cat in Hertfordshire.**—A fine specimen of a male wild cat was caught at Scales Park, Hertfordshire, by Mr. Cotterel's gamekeeper Chapman, who presented it to Mr. James Rolfe, of Clavenny, Essex, and is now in my possession for preservation.—*T. Travis; Gold-street, Saffron Walden, Essex.* [Is it perfectly certain that the specimen is a true wild cat, and not one of the domesticated species that has run wild? We shall be willing to identify the species if the specimen is sent for inspection.—*Editor of the 'Field.'*]

[In the Second Edition of Bell's 'Quadrupeds,'—a publication to which we have so long been looking for more extended information respecting our wild animals,—I find no additional information for differentiating the wild and domestic cats; nor are any instances given, or specimens noted, to which the naturalist may refer as demonstrating with precision what the learned author really intends by his "wild cat." He says, "It is now entirely restricted to Scotland, some of the woods in the North of England, the woody mountains of Wales, and some parts of Ireland." When we compare the vagueness of this passage with the extreme care exercised in our works on British Birds, it is impossible not to be struck with the contrast. The following queries seem not only allowable, but pertinent:—

1. Has a wild cat, or has any species of *Felis* distinct from our domestic mouser, really been killed in Britain?
2. If so, when, where, and by whom?
3. Having obtained satisfactory answers to these questions, then follows the third—Where is the specimen to be seen and examined? It is evident that Mr. Corbin's pussy is partially piebald, a common result, and an almost

unfailing evidence of domestication either in the present or past generation.  
—*Edward Newman.*]

**Rats and Gas-pipes.**—About eight o'clock on Sunday morning a woman named Mrs. Dempster went to the provision shop of Mary Hart, or M'Nab, at 15, M'Alpine-street, Glasgow, but could get no admittance. She returned several times before half-past ten, and still the door was closed. She began to suspect that something was wrong, and on informing her husband, he, along with two other men, went and forced the door in the close. On entering, Mrs. M'Nab, with her two children, Barbara, aged seven years, and David, aged five years, were found in bed insensible, and the servant, Catherine Hughes, was found lying on the floor in a similar condition, while the premises were filled with gas. The poor people were carried off by the relieving party to another house, and Dr. Jack was called in. He applied the usual restoratives, and the children and the servant have all recovered, but Mrs. M'Nab still lies in a precarious condition. Intimation of the escape was sent to the Gas Office, and a plumber was sent to examine the pipes and find out where the leakage had occurred. On inspection he discovered that a large hole had been cut into the lead pipe near the meter by the rats, and that there must have been a large escape of gas. The defect was immediately remedied.—*Glasgow Herald.*

[This occurrence has frequently been reported in London as regards the rats: four holes have been gnawed by rats in the gas-pipes passing under this office. The plumbers assert that the rats, being thirsty souls, tap the pipes hoping to procure water.—*Edward Newman.*]

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**Instances of Albinism requested.**—For some time past I have been engaged in collecting instances of the occurrence of the phenomena of albinism, melanism, and analogous variations in animals, and particularly amongst mammals and birds. Of such I have now collected a large number, either from records in the zoological journals or from actual inspection of specimens, and I hope soon to be in a position to publish the results of my researches. My present object in writing is, however, to ask all those who record the occurrence of such varieties to pay particular attention to, and note, the *colours* of the soft parts, particularly of the eyes, bill, and feet. Two distinct phases of albinism are as a rule confounded under one name—*viz.* (1) what may be termed "albinism" (*sensu strictura*); and (2) what the late Mr. Blyth ('Field,' March 25, 1871, p. 230) has denominated "leucotism." In the former the eyes are invariably red, the other soft parts, as the bill, feet, nails, naked skin, &c., being of a delicate flesh-colour. A truly albino variety of *Macacus cynomolgus*, now living in the Zoological Gardens, well shows this, the fur being perfectly white, the eyes red (in some lights almost transparent), and the skin of the face, hands, &c., as

well as the nails, &c., flesh-colour. In leucotism the feathers or fur become white, but the eyes are never red, retaining either their normal colour or being of some other shade, frequently blue. Unless then the colour of the soft parts be recorded, it is impossible to tell whether the individual is a true albino or only a leucous variety. I would also beg observers to note, if possible, the *sex* of any individual abnormally coloured, so that we may see whether or no one sex be more liable to be affected than the other. This we already know is sometimes the case; thus the female only of *Argynnis Paphia* is sometimes melanoid (infuscated), when it is known by the name of "Valezina." In conclusion I may state that I shall be extremely obliged to persons possessing specimens of such varieties for the loan of such specimens for the purpose of description, and can promise most faithfully that they shall in no way be damaged or detained longer than necessary. I shall also be obliged for references to figures or descriptions of any such varieties, particularly in the case of extra-European species.—*W. A. Forbes*; 35, *S. Castle-street, Edinburgh, January 31, 1875.*

#### **Birds observed near Huddersfield.—**

*Merlin*.—December 31, 1874. A female merlin was shot at Slaithwaite, near Huddersfield, on this date, by a birdstuffer named Bradbury, of Crossland Moor. It is a bird rarely seen in this neighbourhood.

*Dipper*.—January 1, 1875. A pair of these birds were shot near Honley, and sent to the above-mentioned birdstuffer; the severe weather was most likely the cause of their appearance. I believe it is many years since this species was recorded in our locality.

*Great Spotted Woodpecker*.—January 28. A specimen of this bird was shot at Honley at this date, and sent to the same person as the 'dippers for preservation. This woodpecker, although rare, has been recorded oftener than the green woodpecker. About the middle of January four snow buntings were shot near Deerhill.

*Goldfinch*.—January 31. Saw a flock of seven goldfinches at Gawthorpe Green: others have been seen and shot around Huddersfield during the winter; this is the case almost every season, but they have never been known to stay and breed here.

*Hooded Crow*.—Hooded crows have been reported by several persons who have seen them during the very hard frost at the end of last year. They seldom visit this part, and probably would not have done so now had they not been driven by the cold from the East Riding.

*Woodcock*.—Several woodcocks have been shot during this season, as is the case every year. One was shot quite close to the town, and within a stone's throw of houses.—*J. E. Palmer*; *Huddersfield, January 4, 1875.*

**Rare Birds in Guernsey**.—On the 30th of December, 1874, after a heavy fall of snow, I had a female bittern brought me to be stuffed, shot in the morning in the Marais. On the 31st a stone curlew shot at St. Andrew's,

and a female northern diver shot at Rocquiene Bay. On the 1st of January, 1875, a male redbreasted merganser shot off the Sallierie Battery. On the 2nd a bittern shot on the beach near the Vale Church; kittiwakes, black-headed, and common gulls in immense quantities,—in fact it was a beautiful sight to see those birds at Rocquiene Bay; herring and blackbacked gulls have been very scarce this season. A few grebes about from the 4th to the 13th; I had one rednecked, three Selavonian, and four little eared grebes. From that date to the 19th all water birds suddenly disappeared; they then put in an appearance again, when I got a blackthroated diver and the only brent goose that has been shot on the island this season. On the 30th I had two redthroated, one blackthroated, and a great northern diver, a red-necked grebe, and, best of all, a beautiful male specimen of the little auk. The little bustard shot here in November last (Zool. S. S. 4296) was a male. I had it within three hours after it was shot, and I observed the delicate rose tint at the base of the feathers as mentioned by Mr. Gunn. I have also seen a much darker tint at the base of the feathers on the breast of the herring gulls an hour or two after they have been shot, but when cold and dry they have lost it; whether that was the case with the little bustard I cannot say.—*James Couch*; 7, *College Street, Guernsey, Feb. 12, 1875.*

**Birds Nesting in Confinement.**—I was very glad to see (Zool. S. S. 4289) Mr. Stevenson's interesting notes in your last number. His experience of birds in confinement seems remarkably similar to mine. The first year I built my aviary I had only six pairs of birds, and they all built nests, laid eggs, and brought up their young. Last year I had nearly a hundred birds, and hardly a single pair reared their young. If they escaped having their eggs destroyed, the young were sure to be killed. I attributed it at first to a thrush, but the same thing went on when he died; then I thought it must be the mice, though I never saw a mouse in a nest in my aviary, and besides the eggs and young did not generally disappear as though they had been eaten or taken away for food, but the eggs were simply broken or the young lying dead in the nest, or just outside. I managed to get rid of the mice, but it made no difference. I think it must arise from mischievousness on the part of the birds in the aviary, particularly those that are not paired, who, like human beings that have nothing to do, get into mischief. The snow bunting has nested the last two years in the rock-work that supports the fountain in my aviary, but from the situation I had very little opportunity of noting their habits at this season. The male always was perched at the top of the rockery, as though he was keeping watch, and I never once saw him fly from the crevice where the nest was. The first nest that was built contained three unsat eggs, which they deserted for some reason, as I found when altering the rockery later on in the year. Last year they brought forth three young ones, which died very soon after they left the nest.—*Francis Nicholson*; *Chesham Place, Bowdon, Cheshire.*

**Marsh Harrier near Newbury.**—A fine specimen of the marsh harrier was shot near here on January 13th by a friend of mine, when shooting in the meadows near Newbury; the bird was flushed from a bunch of reeds, and was feeding on the remains of a teal. I had not the pleasure of seeing the bird, but from the description my friend gave me I expect it was a female.—*W. H. Herbert; Wyfield Manor, February 18, 1875.*

**Redwing killed by a Crow.**—On the 26th of December, 1874, a game-keeper at Northrepps, in Norfolk, observed a redwing which, whilst flying some eight or ten yards from the ground, was struck to the earth by a hooded crow, which fell to the ground with it; but upon my informant running up flew away with its prey into an adjoining wood. The redwing was no doubt much weakened by the effects of the severe weather, but the circumstance of its being thus captured on the wing seems to me to be worthy of record.—*J. H. Gurney; Northrepps, January 23, 1875.*

**Hobby and Egyptian Goose near Hereford.**—A female hobby was brought to one of our birdstuffers in the early part of October. It was shot at Lyde, three miles from this city; examples of this species are rarely obtained in this neighbourhood. About the same time three Egyptian geese were shot at Whitwick, by Mr. P. S. Morris; they were immature birds.—*J. B. Pilly; Hereford, January 21, 1874.*

**Nightingale's Nest in a Fir Tree.**—I found at Kreuznach, Germany, last year, a nightingale's nest placed among the branches of a small fir, about five feet and a half from the ground. I saw the bird on the nest, which was of the usual materials. There were plenty of more suitable localities in the neighbourhood.—*John P. Thomasson; Alderley Edge.*

**Chiffchaff in February near Plymouth.**—On Tuesday last, the 16th of February, whilst walking on the Plymouth and Saltash road, when within a mile of Plymouth, I was much surprised to hear the familiar notes of the chiffchaff. At first, the sound coming from some distance, I thought I might possibly have been deceived, but on my getting near some elms growing near the road, I heard the notes several times repeated, so as to leave no room for doubt on the matter, and at last I had the satisfaction of seeing the bird itself, busy among the branches of the elms in the pursuit of some insects, which a remarkably warm and bright day had called forth. I stood and watched it for some minutes, and had the pleasure of hearing it again give out its cheerful double note. I am aware that several instances are on record of the chiffchaff having been noticed in the winter, so that the fact I now communicate only adds another to the number, and tends to strengthen the opinion advanced by Montagu that the species does not wholly quit our shores before winter. This admirable ornithologist says the earliest he ever heard was on the 14th of March: I have noted its appearance or song twice on the 15th, near Plymouth, but usually it is not heard here until about a week or ten days later. I may add that it is very common in this

neighbourhood, and I have found its nest dozens of times. This is generally less artfully concealed than is that of its congener, the willow wren. It is sometimes built in a bush, mostly one of bramble or furze, occasionally two or more feet above the ground, but often with the lower part of the nest touching it, though rarely or never with the cavity sunk so as to leave the hole in the side level with the ground, as is the case not unfrequently with that of the willow wren. I have never seen more than six eggs in any nest of the chiffchaff, whereas that of the willow wren will sometimes contain seven.—*T. R. Archer Briggs*; 4, *Portland Villas, Plymouth, February 18, 1872.*

**Siskin, Lesser Redpoll, &c., near Ringwood.**—I observed the siskin and lesser redpoll about the 20th of October, though, as the latter is said to breed occasionally in the Isle of Wight, its occurrence here is not very remarkable. Both species usually leave this neighbourhood at the end of March or beginning of April, and I do not see them again till the cold misty days of November. On the 25th of October I saw four bramblings, and had a specimen sent me the following day.—*G. B. Corbin.*

**Capercaillie in Nottinghamshire.**—Since last month I have heard that the supposed capercaillie has turned out to be a hybrid between a pheasant and a black grouse. I am sorry that I did not write to Mr. Walter (to whom the bird has been sent) before sending the account of it to the 'Zoologist,' but the gentleman who shot it being an old sportsman and a fair naturalist assuring me that he was positive as to the bird's identity, I wrote without getting further information. Mr. Webb told me the other day that he had also shot a hybrid at Newstead Abbey this year, probably one of the same brood.—*J. Whitaker*; *Rainworth Lodge, Mansfield.*

**Curlew in Nottinghamshire.**—When snipe shooting up the brook here during the frost, a curlew rose from the side of the stream: it remained about for several days, but was much too wary to be shot. Considering the long frost we have had, there have been very few rare birds about here.—*Id.*

**Variety of the Razorbill.**—On the 30th of January last a very curious variety of the razorbill (which has subsequently been added to the collection of my son, Mr. J. H. Gurney, jun.) was shot by Mr. Matthew Bailey on the North Smithie Sandbank, about three miles off Flamborough Head. Mr. Bailey informs me that when first shot the bill, legs, and feet of this specimen were "a perfect yellow." When the bird reached here on the 3rd of February, the bill had acquired a pink hue, but the legs and feet were still yellow, especially the webs, which were a bright lemon-colour. The bird was in the ordinary winter dress of this species, except that the dark portions of the plumage, especially on the head and neck, were somewhat paler than in normal specimens. The bill had not attained its full dimensions, and I think indicates a bird of the second year. On dissection I found it to be a male bird, and very fat. No similar variety of this species ever came under my notice.—*J. H. Gurney*; *February 17, 1875.*

**Shieldrake in the Færoe Islands.**—In a recent communication from Herr H. C. Müller, of Thorshavn, he mentions that since Capt. Feilden's visit to the Færoe Islands in 1872, the result of which is to be found in his admirable paper in the 'Zoologist' (S. S. 3210, 3245 and 3277), one addition has been made to the Avifauna of these islands, *viz.*, a male shieldrake (*Anas Tadorna*), which appeared in March, 1874, thus making the total number of birds hitherto observed 139. — *John J. Dalgleish*; 8, *Athole Crescent, Edinburgh, February 8, 1875.*

**The Arctic Expedition.**—I am officially informed that Captain H. W. Feilden, so well known as the author of "The Birds of the Færoe Islands," which appeared in the 'Zoologist' for 1872, has been selected by the Royal Society as Naturalist to the Arctic Expedition.—*Edward Newman.*

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**Aerating Aquariums.**—I have just been reading the 'Zoologist,' a publication that is to me, as doubtless to many others, a never-exhausted store of interest, and in every number I read the interest you manifest in aquaria. I find so much to enjoy in a marine aquarium I have successfully maintained for several years past, that I am always anxious to help others to the same if I can by any means do so. I therefore offer for your acceptance the following description of a simple contrivance I have lately added to my aquarium as an additional means of aërating the water, and which seems to be appreciated by the inhabitants of my tank. I have drilled a hole through one of the slate sides of the tank above the water level, and cemented in a piece of tin gas-pipe, leaving it projecting about an inch on each side: attached to the inner portion by a short piece of india tube I have fixed a length of glass tube about the diameter of an ordinary quill; this is bent at the necessary angles to enable it to lay safely along the sides and bottom of the tank. About the middle of the tank the glass is again bent, so that its end may project into the middle of the water; this end has been drawn in a flame to a capillary point, and the extremity broken off, to leave a very minute orifice. To the outside piece of tin tube an india-rubber tube is connected with a bellows of the same material, by the working of which a stream of atmospheric air is driven into the water till it appears effervescing, the bubbles of air remaining in suspension for hours, and becoming ultimately absorbed. This plan entirely supersedes the syringing recommended, and seems to be attended by such good results, that I offer the suggestion to you, to make whatever use of it you may deem it worth. —*T. Charters White*; *Scientific Club, 7, Savile Row, W., Feb. 8, 1875.*

[A very similar plan was not only invented but carried into effect by the late Dr. Robert Ball, of Dublin, at the Zoological Gardens of that city: it is described as "a method of keeping sea water in occasional motion by passing bubbles of air through it with a pair of bellows." This apparatus

was to be worked by visitors, thus affording them amusement and useful occupation at the same time. It is not recorded, so far as I am aware, whether the experiment was successful, or how long it was continued. I think it is scarcely necessary for me to add that having taken up the subject of aquariums, their construction and management, I shall be greatly obliged for the communication of any facts or suggestions that may be of advantage either to the possessors or projectors of these most amusing and instructive establishments. It must not be supposed that we have yet attained perfection in their construction; finality does not apply to aquariums. I cordially invite inquiry, with a view to elicit additional information.—*Edward Newman.*]

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## Proceedings of Scientific Societies.

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### ZOOLOGICAL SOCIETY OF LONDON.

*January 19, 1875.*—ROBERT HUDSON, Esq., F.R.S., V.-P., in the chair.

The Secretary called attention to a letter received from a correspondent in Ternate, Moluccas, in which it was stated that the writer had living examples of four species of paradise birds in his possession—namely, *Paradisaea papuana*, *Seleucides alba*, *Diphyllodes speciosa* and *Ptilornis magnifica*.

A communication was read from Mr. J. Brazier, of Sydney, giving descriptions of ten new species of Australian shells, from the collection of Mr. A. Coxen, of Brisbane, Queensland.

Mr. A. G. Butler read descriptions of four new species of butterflies of the genus *Protophonus*, from the collection of Mr. H. Druce.

A communication was read from Messrs. P. L. Sclater and O. Salvin, giving descriptions of three new species of South American birds. These were proposed to be called *Microcereulus squamulatus*, *Autumolus striaticeps* and *Tigrisoma Salmoni*.

Prof. Newton gave an account of a manuscript, in the French Archives de la Marine, which contained some additional evidence as to the original fauna of Rodriguez, and called especial attention to the unknown writer's account of the terrestrial birds of that island, amongst which were mentioned the "solitaire," the *Erythromachus Leguati* of A. Milne-Edwards, and other now extinct forms.

A communication was read from Dr. A. B. Meyer, Director of the Royal Natural History Museum, Dresden, containing the description of a new bird of paradise, skins of which had been sent to him by Mr. van Musschenbroek, the Dutch Resident at Ternate, and which it was proposed to call *Diphyllodes Gulielmi* III. The habitat of this new bird is stated to be the inner mountains of Eastern Waigiou.

A communication was read from Major H. H. Godwin-Austen, containing supplementary notes on a former paper on the species of *Helicidæ*, of the subgenus *Plectopylis*.

February 2, 1875.—Dr. A. GÜNTHER, F.R.S., V.-P., in the chair.

Mr. Sclater exhibited and made remarks on a fine skin and skull of a female huemul (*Cervus chilensis*) and a pair of horns of an adult male of the same animal, forwarded by Mr. Edwyn C. Reed, of the National Museum, Santiago, Chili.

Dr. E. Hamilton exhibited some deformed sterna of the common fowl, and made remarks thereon.

Prof. A. H. Garrod read a paper on the kangaroo called *Halmaturus luctuosus* by D'Albertis and on its affinities, in which such points in the anatomy of the type-specimen were described as served to explain its systematic position. It was shown from the form of the premolar and molar teeth, from the nature of the fur and from other minor details, that this species must be placed in the same genus as the *Dorcopsis Brunii* of Müller (named more correctly *D. Muelleri* of Schlegel). The species, therefore, should stand as *Dorcopsis luctuosa*, being the only other known species of the genus. It was also shown that *Dorcopsis* together with *Dendrolagus* form a well-marked independent group of the Macropoid Marsupialia.

Mr. Sclater read notices of some rare parrots now living in the Society's Gardens, and called special attention to examples of Goffin's cockatoo (*Cacatua Goffini*) and Bouquet's parrot (*Chrysotis Bouqueti*) as being amongst the rarest specimens.

A communication was read from Mr. Edward Bartlett, Curator of the Museum and Public Library, Maidstone, containing a list of the mammals and birds collected by Mr. Waters in Madagascar, amongst which was a fine adult specimen of the Madagascar river-hog (*Potamochoerus Edwardsi*).

A communication was read from Mr. E. P. Ramsay, containing remarks on the original skin of *Ptilonorhynchus Rawnsleyi*, which he regarded as a hybrid between the satin bower-bird (*Ptilonorhynchus holosericeus*) and the regent-bird (*Sericulus chrysocephalus*).

Mr. R. Bowdler-Sharpe read a paper intitled "Contributions to the Ornithology of Madagascar," being his fourth communication on the same subject made to the Society. This paper contained descriptions of a new Accipitrine form proposed to be called *Eutriorchis Astur*, a new species of *Atelornis*, proposed to be called *A. Crossleyi*, and a new form of *Nectariniidæ*, to which the name *Neodrepanis coruscans* was assigned.

Dr. Günther read a paper on some mammals recently collected by Mr. Crossley in Madagascar, amongst which were a new lemur proposed to be called *Chirogaleus trichotis*, and a new form of rodent, belonging to the *Muridæ*, for which the name *Brachytarsomys albicauda* was suggested.

February 16, 1875.—GEORGE BUSK, Esq., F.R.S., V.P., in the chair.

The Secretary read a report on the additions that had been made to the Society's menagerie during the month of January, 1875, and called particular attention to the following animals:—1. A silver-backed jackal (*Canis chama*, Smith) presented to the Society's collection by Mr. H. N. B. Good, who had obtained it at the Diamond Fields, Griqua-land. 2. A banded cotinga (*Cotinga cincta*, Bodd.) from Bahia, purchased January 18, and believed to be the first example of any species of this magnificent group of birds that had reached Europe alive. 3. A young Australian cassowary (*Casuarius australis*), from Northern Queensland, presented by the Marquis of Normanby, being the first example of this cassowary received in a living state.

Mr. Sclater exhibited a drawing of a supposed new rhinoceros from the Terai of Bhootan, which had been forwarded to him from Calcutta, by Mr. W. Jamrach, who possessed the animal alive, and intended bringing it to England.

Mr. Sclater exhibited and made remarks on a living specimen of the Peguan tree shrew (*Tupaia peguana*) which had been presented to the Society by the Hon. Ashley Eden, Chief Commissioner at Rangoon, British Burmah. This was believed to be the first specimen of a living Tupaia of any species that had reached Europe.

Mr. A. H. Garrod read a paper on a point in the mechanism of the bird's wing, which renders it so specially adapted for flight.

Mr. Sclater read remarks on the cassowaries now living in the Society's gardens, amongst which were representatives of five different species. One of them from the south of New Guinea was believed to be new to science, and proposed to be called *C. picticollis*. Mr. Sclater also gave notice of a new cassowary obtained in the Aroo Islands by Signor Beccari, and transmitted to the Museo Civico of Genoa, which he proposed to call *Casuarius Beccarii*.

Professor Owen communicated a note on the discovery of the remains of various species of *Dinornis* in the Province of Otago, New Zealand.

Mr. Edward R. Alston read a paper on *Anomalurus*, its structure and position, in which he came to the conclusion that this peculiar form of rodents should be either referred to the Sciurine group of rodents as a distinct sub-family, or placed next to it as a separate family—*Anomaluridæ*.

Mr. H. E. Dresser read some notes on the nest and eggs of *Hypolais caligata*, and on the egg of *Charadrius asiaticus*, and made remarks on the latter species, and on *Charadrius veredus*.

Mr. R. Bowdler-Sharpe communicated a paper on the birds of Labuan, in which was given an account of a collection made in that island by Mr. John Low.

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## ENTOMOLOGICAL SOCIETY OF LONDON.

January 4, 1875.—Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

*Donations to the Library.*

The following donations were announced, and thanks voted to the donors:—‘Proceedings of the Royal Society,’ no. 156; presented by the Society. ‘Boletin de la Academia Nacional de Ciencias exactas existente en la Universidad de Cordova,’ Estrega III.; by the Academy. ‘Stettiner Entomologische Zeitung,’ xxxv., nos. 10—12; by the Society. ‘The Canadian Entomologist,’ vol. vi., no. 10; by the Editor. ‘L’Abeille,’ t. xi., livr. 23; by the Editor. ‘Newman’s Entomologist’ and ‘The Zoologist’ for January; by the Editor. ‘The Entomologist’s Monthly Magazine’ for January; by the Editors. ‘Illustrations of Diurnal Lepidoptera,’ part vi., Lycænidae, by William C. Hewitson; by the Author. ‘Descriptions de plusieurs Neuroptères-planipennes et Trichoptères nouveaux de l’île de Célèbes et de quelques espèces nouvelles de Dipseudopsis, avec considérations sur ce genre,’ par M. R. M’Lachlan; by the Author. ‘Note sur les caractères d’une larve d’insectes Orthoptères de la famille des Ephémérines (genre Cænis),’ par le Docteur Emile Joly; by the Author. ‘Note sur les Géotrupides qui se rencontrent en Belgique,’ par A. Preudhomme de Borre; by the Author. ‘On the Insects more particularly associated with *Sarracenia variolaris* (spotted trumpet-leaf),’ by Charles V. Riley; by the Author. ‘Un Parasite de Cheiroptères de Belgique (*Nycteribia Frauenfeldii*, Kol.),’ par M. Félix Plateau; by the Author.

*Exhibitions, &c.*

Mr. Stevens exhibited varieties of *Diloba cæruleocephala* and *Hibernia defoliaria*, bred from larvæ taken near Brighton.

Mr. Smith exhibited a fine collection of Hymenopterous insects forwarded from Calcutta by Mr. Rothney. Amongst the Formicidæ were *Polyrachis bicolor* and *Dorylus longicornis*. Amongst the Fossores were *Mutilla sexmaculata*, *Pompilus dorsalis*, *Sphex sericeus*, *Chlorion lobatum*, *Ampulex compressa*, *Ammophila nigripes*, *Trirogma cærulea*, *Larrada aurulenta* and *Bembex lunata*. Amongst the Vespidae were *Eumenes petiolata*, *E. conica*, *E. flavopicta*, *Rhynchium transversum*, *R. argentatum* and *Vespa cincta*. The specimen of *Rhynchium transversum* had been attacked by *Stylops*. There were also (of Apidae) two new species of *Nomia*—one of them with capitate antennæ—and a new species of *Nomada*. Also several small, undescribed species of bees of the genera *Prosopis*, *Halictus* and *Ceratina*; and a fine series of *Stelis carbonaria*. The whole were in beautiful condition.

Mr. M’Lachlan stated that one evening, about thirty-six hours after the breaking up of the recent intense frost, he had noticed the December moth (*Cheimatobia brumata*) attracted in great numbers to the gas-lamps in the

neighbourhood of Lewisham, and that in some instances there were as many as a dozen on one lamp. Mr. Boyd mentioned a case that had come under his observation of that insect having been picked up, apparently dead, on the snow, and that it had revived on being placed in a warm room. Mr. Butler also noticed a similar fact in regard to a specimen of *Pieris rapæ*. Mr. Jenner Weir made some remarks on the importance of ascertaining whether the insects noticed by Mr. M'Lachlan were hybernated specimens or whether they had been newly hatched when he observed them.

The Secretary read a letter he had received from Mr. R. S. Morrison, of George Town, Colorado, expressing a wish to be placed in communication with any entomologists who might be interested in the investigation of insect faunas of the higher altitudes (8,000 to 14,000 feet).

The Secretary exhibited a bottle containing a number of specimens of a Mantis, about half an inch long, which had been forwarded to him from Sarawak by M. de Crespigny, who was under the impression that they were perfect insects; but on examination they appeared to be only young larvæ. He observed them crossing the table at which he was sitting, and at first sight they had the appearance of a column of ants.

*New Part of 'Transactions.'*

Part IV. of the 'Transactions' for 1874 was on the table.

*Annual Meeting, January 25, 1875.*—Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

An Abstract of the Treasurer's Accounts for 1874 was read by Mr. Jenner Weir, one of the Auditors, showing a balance of £186 10s. 7d. in favour of the Society.

The Secretary read the Report of the Council for 1874.

The following gentlemen were elected Members of Council for 1875:—Sir Sidney Smith Saunders, Messrs. W. C. Boyd, A. G. Butler, G. C. Champion, J. W. Dunning, F. Grut, R. M'Lachlan, R. Meldola, F. Moore, Rev. R. P. Murray, F. P. Pascoe, F. Smith, and J. J. Weir.

The following officers were elected for the year 1875:—President, Sir Sidney Smith Saunders, C.M.G.; Treasurer, Mr. R. M'Lachlan; Secretaries, Messrs. F. Grut and A. G. Butler; Librarian, Mr. E. W. Janson.

The President read the annual Address.

The thanks of the meeting were unanimously voted to the President for his Address and for his services during the past year. The President returned thanks.

Thanks were also voted to the other officers for their services during the year. Mr. M'Lachlan returned thanks.—*F. G.*

*Notes on the Natural History of South Africa.*

By R. B. and J. D. S. WOODWARD, of Natal.

(Continued from S. S. 4357.)

*Otter* (*Lutra capensis*).—The Cape otter is considerably larger than the European species: its fur is beautifully soft and of a velvet smoothness, reddish brown on the back, turning into gray on the head; the under parts are white.

There are several pairs of otters on the Ifafa, and they are to be found in most of the other rivers of this country. They are not often seen, owing to their nocturnal and retiring habits; but by watching their haunts of an evening we have seen them emerge from the scrub and plunge into their favourite element, in search of mullet, barbel, and eels, which abound in these streams. They are very tenacious of life, and although we have wounded many we have never been able to secure them, as, however hard they may be hit, they always manage to dive, and so effect their escape. If otter hounds were introduced into this country they would no doubt afford good sport.

On the 5th of August, 1874, we caught a fine specimen of the Cape otter in a large steel trap set on one of their runs on the banks of this river. The animal measured four feet three inches in length, and weighed thirty-five pounds: it was dead when found, but had struggled a great deal, and had dragged the trap, although a very heavy one, some distance, and had bitten a strong pole to which it was attached. Some of our Kafirs ate the flesh, which they seemed to enjoy, but most of them considered it unfit for food: on tasting it we found it to have a coarse tough fibre, with very little flavour of any kind, but not rank. The inside of the skin was covered with a thick layer of oily fat, but we managed to cure it by first drying it in the sun, and afterwards handing it over to the natives to undergo a process called "braying," which is nothing more than scrubbing it well with pieces of sandstone until it becomes soft and pliable. Prepared in this way skins will keep for many years. The feet of the otter are very large in proportion to the size of the body, and the spoor is often mistaken for that of the leopard.

*Snakes, Puff-Adders, Grass-Snakes and Water-Snakes.*—The puff-adder (*Clotho arietina*) is very widely distributed throughout the whole of South Africa, and is found as far north as Egypt.

Although frequently met with in this country as well as a great number of other snakes, it is not so alarmingly common as most new comers seem to imagine: it is quite amusing to see how carefully at first they pick their steps amongst the long grass—almost afraid to put their feet to the ground for fear of treading on some dangerous reptile; they soon, however, become accustomed to the country, and know how little real danger there is. Snakes are naturally of a timid disposition, and endeavour as much as possible to keep out of the way: it is astonishing how few accidents happen in a country where they abound like Natal. The puff-adder is a short thick snake, rarely exceeding two feet in length. This snake is certainly the most dangerous, owing to its sluggish habits. We have heard of instances of people treading on these reptiles. A friend of ours, not long ago, was going up to his house, followed by a native, when he suddenly heard the man exclaim, in tones of horror, "Wow wow mamee!" On looking round, he found that he had trodden upon a puff-adder, but most providentially had stepped on its head, which was completely crushed, the reptile being quite dead. He quietly told the Kafir that this was the way he always treated such venomous animals, which made him think our friend possessed supernatural power. This morning on going down to pick "granadillas" (the fruit of the passion-flower), we found a large puff-adder hidden among the foliage. When killed it measured three feet, the circumference of its body being about that of a man's wrist.

It is generally thought that the poison of snakes has no effect if taken internally; but in the year 1870 D. W. lost two dogs (a retriever and a collie) in a remarkable manner. He was surprised one morning to find them in dreadful convulsions, which soon ended in death. On dissecting them it appeared that they had swallowed some snakes that had been preserved in spirits, and had been thrown out the day previous. One of these was a black water-snake, and the other was a small snake known here as the "death-adder," with markings very similar to those of the puff-adder. It is also the general idea among the natives that snake-poison will destroy life if swallowed.

Many people still doubt whether serpents really have the power of fascinating other animals, but, judging from our own experience, we should say this was a fact. One day about two years ago, on entering our house, we saw a formidable-looking adder in the

middle of the floor, with its head greatly puffed out, as is usual with it when irritated, and from which it derives its name. We soon discovered the cause of its anger: our unfortunate cat was standing a few feet off, terror-struck and quite unable to move: it was not until we had broken the spell by attracting the attention of the reptile that the cat could get off. If we had not so opportunely arrived the cat would probably have fallen a victim to its power. At another time, whilst in the bush, we saw a long green snake up in one of the trees fascinate not only one bird, but several at the same time,—thrushes, shrikes and finches helplessly fluttering around it,—the reptile gently moving its head backwards and forwards, only waiting for the moment when one of the birds should approach near enough to be taken. We think this must be the way tree snakes usually procure their food, as we have often heard the alarm cry of birds when nothing could be seen to cause it.

The puff-adder sometimes brings forth its young alive; at other times it lays eggs, which are hatched by the heat of the sun. The natives say they have seen a white species, and that its habits and venomous properties are the same: it is possible these might be albinos, but they say they are common in some districts. There is a curious superstition among the Kafirs that when they die they turn into a kind of snake which they call "itongo:" they say it is of a green and white colour, and grows to a great length: according to their belief this animal has the power of becoming invisible at pleasure. They say that when a man dies his soul is immediately transformed into an itongo, and has the power, like a guardian spirit, of protecting the interests of his living relations; they think that no death can occur without the sanction of this extraordinary reptile, and in time of sickness propitiatory offerings are made to it: a beast is slain and hung outside of one of their huts, in the thatch of which the snake lives; it is supposed to come out at midnight and take a portion, generally being satisfied with the blood alone.

There is a very venomous little snake found here, called by the colonists the "deaf-adder," because when met with it never makes any attempt to get out of the way. The other day we had a narrow escape from one of these nasty little adders, but fortunately, although it was too lazy to move, it warned us in time by hissing loudly.

We often find the cast-off skins of serpents in rather inconvenient places: at the sloughing season they sometimes secrete themselves under boxes, sofas, and in other cozy nooks, as proved by their skins being frequently found in such retreats.

It is pleasant, after enumerating so many poisonous snakes, to have to mention one which is quite harmless. The common grass or whip snake is a pretty and elegant little animal: the latter name is derived from its long slender form, which bears some resemblance to the thong of the large whip used here for driving oxen. It is not often seen, owing to its remarkable agility, and to its grass-green colour. We have a fine specimen of it preserved in spirits.

There are many other kinds of snakes found in the grass, few of which are dangerous: most of them are said by the people here to eat wild berries and fruits, and the eggs of birds.\* They will sometimes enter the fowl-house and eat the eggs of the poultry; they suck out the contents by making a small hole at one end.

The "avusamans," or black water-snake, is very common in low swampy land and amongst the reeds that grow along the small streams; it is not so often seen on the larger rivers. Its habits are amphibious, for although spending most of its time on land, it can swim and dive readily. Another species is called by the Kafirs "iffulu," and is of a beautiful bright green colour, with a white belly. We have never seen it out of the water, where it glides amongst the rocks, feeding on water-insects, &c. Notwithstanding the horror most people have of snakes, few could help admiring the graceful movements of this serpent in its native element: it usually attains the length of from three to four feet. Both these snakes are poisonous, which makes it unsafe to bathe in the places they frequent. It is said that if a person is bitten below the surface of the water there is no danger. Fortunately water-snakes are rarely found in deep water, and in the shallows they can be easily seen.

*Hornbills.*—The hornbill (*Buceros coronatus*) is one of our commonest birds, and is also seen throughout the Cape Colony and on the western coast. Its plumage is brownish black, with the exception of the belly and tips of wings and tail, which are white: the bill is large and of a bright red colour, but, unlike the

\* I have on several occasions met with the curious statement that snakes will eat berries and fruit: such a notion is quite opposed to my own ideas of a snake-diet.—*E. Newman.*

other species, is very slightly casqued. The bird measures twenty inches, including its long tail and bill, although when plucked it is not larger than a pigeon. It is called in Natal the "toucan," from its great resemblance to the American toucans, but when closely examined a distinguishing feature is at once seen. American toucans have only three claws [*Ed.*], whilst all the African species have four. Although the large fragile bill seems formed expressly for fruit-eating, yet this hornbill by no means confines itself to a fruit diet, feeding largely upon caterpillars, beetles and other insects, which we have often taken out of its stomach. This bird is naturally half tame, and will allow one to approach within a yard or two without stirring: on being disturbed it floats rather than flies to another tree, seeming to use scarcely any effort in doing so, uttering at the same time its loud shrill cry of "he, he! he-he-he!" They congregate in small flocks of from ten to twenty, and, except at the breeding season, are never seen in pairs. They lay from three to five white eggs, with a rough unpolished surface, the size of a ring dove's, but more tapering: these are placed in a hole of a decayed tree. The curious habit they have of plastering up the female in her nest whilst hatching has often been described. When the young are out of the shell she escapes from her confinement, probably with the assistance of her mate, and they are both equally assiduous in bringing food for their young, which are very voracious. On the 21st of December, 1871, we found a nest containing five half-fledged young birds; three of these we took home and reared on bread and porridge. They throve well, and we kept them for some months, flying about the place as tame as possible. Unfortunately they came within the reach of an eagle we had at the time, who quickly devoured them. When resting they had a peculiar habit of squatting on their tibiæ, with their tails erect, looking more like squirrels than anything else. The way this bird has of feeding may be worth mentioning: on account of the awkward length of its bill it has to make two efforts before it can swallow its food: it first takes its food into its bill, and then by jerking the head backwards, throws the food fairly into its throat; this is rather troublesome, as it has to repeat the process with every berry it swallows. The flesh of the hornbill is not bad, but this species is rarely shot on account of its small size.

The pied hornbill (*Buceros Buccinator*) is a much larger species than the last; the specimens, male and female, in our collection,

measure two feet, and one foot ten inches. There is an enormous protuberance on the bill of the male, in shape like a helmet, which makes it look as if it had a double bill. Its colour is black, glossed with green; the belly, rump, and tips of the wings and tail are pure white; the bill, legs and feet are black. The bird is much more wild and unsociable than the common hornbill, and flies with great strength and speed. Its cry is loud and harsh, sometimes like the mewling of a cat; at other times it cries in a fretful manner, as if in pain. We constantly see flocks of these birds flying high overhead or alighting in the branches of a huge banyan, where they feast upon their favourite food, the Indian fig. We have not yet discovered their nests, but they are said to build in the crevices of the most inaccessible rocks. Closely allied to these birds is a third species of hornbill, *Bucorvus Abyssinicus*, which is very abundant in Natal, where it is called the "turkey buzzard." Its plumage is black; it is about the size of a turkey, and, at a distance, does not look unlike one, although in its habits it more resembles the vulture, feeding largely upon carrion. The turkey buzzard is very useful in clearing the country of snakes and other reptiles, of which it devours enormous numbers. Its voice has a booming sound, not unlike distant thunder, and can be heard a long way off. It is generally heard crying before rain, from which fact the natives think that it has the power of bringing rain: they are very superstitious regarding this bird, and believe that if one is killed near their kraals some misfortune will be sure to happen. On the 29th of November, 1872, we found the nest of a pair of these birds; it was built of sticks in a large tree standing by itself in the open country; in it there were two young ones, one much larger than the other: the larger of these birds we reared and had for a long time tame: when young we had to feed it entirely on meat, but as it grew up it found a good deal of its own food in the garden. We had to part with the turkey buzzard at last, as it took to destroying poultry, swallowing the young chicken whole. It had a voracious appetite, which nothing seemed able to appease. We have seen one of these birds walking about the place with part of a long snake protruding from its mouth, waiting to finish its meal as soon as the first part was digested. The following season we took from the same nest a fine specimen of their egg. The egg is very strong, larger than a turkey's, and of a dull white colour.

*Rock Rabbit* (*Hyrax capensis*).—This curious animal is not a true rabbit, but is no doubt identical with the "coney" of Palestine; it is about the same size as the common wild rabbit of England, which it closely resembles in colour, but the fur is shorter and smoother: it has very small ears and no tail. Naturalists do not agree as to the affinities of the rock rabbit: Cuvier places it between the rhinoceros and the tapir. There is a large colony of rock rabbits under the cliffs on our estate: they do not burrow, but live in the holes and crevices of the rocks, forming a large warren, where they reside in great security from most of their enemies. The rock-snake or python is the foe most to be dreaded, as it inhabits the same localities. The rock rabbit feeds largely on the roots of different plants, but its favourite food seems to be the fruit of a species of wild plum. In search of these we have seen it climb the trees and sit on the branches, although, from the formation of its feet, we should not have thought it capable of doing so. Early in the morning or in the evening, on visiting their warren, we are sure to see a number of them sitting on the rocks, outside their holes, calling to one another with their shrill chirp: the male coming out first calls to the female, who soon appears on another ledge of rock. If care be taken at this time they can be easily shot, but unless killed outright they will drop into their holes, and not be seen again. The flesh is dry and rather tasteless, but may be made into a good curry. The coney is easily domesticated; we have had it tame, but it is necessary to keep it confined. We have not heard of their breeding in confinement, but have no doubt they would do so if well managed. To see the great heaps of dung under the rocks one would think that they never changed their abode. The Dutch, by sewing the skins together, make fine "karrosses" or rugs of them. When the grass is young and tender the rock rabbits are sometimes tempted out from their secluded home, and may be seen grazing on the heights above, but they generally avoid the rays of the sun.

*Jumping Hare* (*Helamys capensis*).—This quadruped, although called a hare is more nearly allied to the jerboas, possessing the same extraordinary power of leaping a long distance at one bound. It is common in Natal, where it frequents rocky hills and the stony courses of dry river-beds: in these places it may be seen sitting upright on a boulder eating its food with its front paws, and when startled it soon disappears by a series of bounds from rock to rock.

In size it is rather less than the common hare; the fur is very long and of a fulvous colour; the tail is bushy and tipped with black hairs. The Kafirs call it "tenash," and kill large numbers by hunting them down with dogs, as they are very fond of the flesh: they use the skin to make their "mutchu," the only garment they wear in their wild state, which is simply a girdle composed of strips of skin hanging round their waists. In some places, where rocks are scarce, they are said to burrow and form large warrens, like the rabbit; but we cannot vouch for the truth of this, never having seen them out of a stony country. On one occasion we found a nest formed of dry grass, lined with the down of these animals, in the middle of our coffee plantation; it contained a young "helamys," which was very wild and endeavoured to escape: we took it home, but it would not eat, and soon died. If taken at a suitable age, there is no reason why they should not thrive well in confinement. The flesh we have often eaten; it is much superior to that of the rock rabbit.

*Weaver-Birds.*—As so much has been written about the African weaver-birds and their nests, we will confine ourselves to a few remarks on the different species in the collection which we have formed in Natal.

The speckled weaver (*Ploceus spilonotus*) is the commonest of our weaver-birds: here it almost takes the place of the sparrow, and it is as much complained of by the farmers, although perhaps it does as much good as harm, feeding for a considerable part of the year upon insects. They congregate in large flocks all the year round, and at the breeding season form colonies in the branches of large trees, generally on the banks of a stream; the "flat-crown," a species of acacia, is their favourite tree. The nest is nearly round, with the opening on one side; it is fixed to the branch with thongs of grass. The eggs vary greatly in colour, but are usually of a light blue, spotted with brown. Weavers are very noisy birds, and whilst building keep up a continual chattering. Sometimes they suspend their nests between two strong reeds in the water, which are more secure in windy weather than those placed in the trees. Last year, after a violent storm, we found about fifty of the nests of this weaver strewn the ground under a single tree, the eggs and young being destroyed. The birds, not at all disheartened, at once commenced to rebuild, and soon the tree was as thickly covered with them as ever. The plumage of

the male in summer is bright and showy, being of a yellow colour, speckled with black; but the winter plumage is much duller, and hardly to be distinguished from that of the female, which is nearly brown.

Another species that generally congregates with the above is the yellow weaver-bird: it is of a light yellowish green colour, slightly darker on the wings. Its habits are nearly the same as those of the speckled weaver-bird, but the nest is differently formed, being oblong, and has a stem or tunnel at the bottom through which the bird enters. They are not so social as the common weaver, and single nests are often found.

The scarlet weaver (*Ploceus Oryzæ*) is a beautiful little bird, bright scarlet above, including the throat and vent, and velvety black below. It is found only in the up-country districts, where it assembles in small flocks, suspending its nest, which is made of grass of a very fine texture, from the flags along the river. They lay from three to five light blue eggs.

The yellow-bellied grosbeak or solitary weaver-bird (*Sycobius bicolor*) is very different in its habits from the other weavers. It always remains in pairs, and builds its nest in the thickest part of the woods: this is large and roughly put together, but like in shape to that of the yellow weaver-bird: it looks very pretty, hanging from one of the topmost boughs of a high tree. The eggs are white, speckled with red. It is a cheerful bird, and quite enlivens the bush with its peculiar song, which sounds not unlike the creaking of a rusty hinge, from which we sometimes call it the "hinge-bird." Its colour is black above and yellow on the breast and belly, and it lives largely on wild berries.

The redbilled weaver-bird (*Textor erythrorhynchus*) is pretty common in our neighbourhood, but as yet we have not been able to find out where it breeds. In the wilder parts of Africa it is said to be the constant companion and friend of the buffalo; perched on his back it relieves him of many annoying insects, and warns him of the approach of danger by shrill alarm-cries. In this more civilized land it performs these good services for the domestic ox, who in the warm season is dreadfully pestered with ticks and flies. The cattle seem to know the value of these birds, and make no attempt to scare them off. The colour of this species is black, with white on the wings; the bill is bright orange: it is about the size of a thrush.

The only object we can see for the weavers suspending their nests, and building in trees, overhanging water, is to protect their young from snakes and other vermin, as they have to travel a long way in search of food for them, which is not to be obtained close at hand. In 1872 we perceived a whole colony of weaver-birds (*Ploceus spilonotus*) suddenly desert their nests, containing at the time eggs and young, without any apparent cause, and they did not return to the vicinity till the following year. The only way we can account for this is that a large tree-snake had taken up his residence among them.

R. B. & J. D. S. WOODWARD.

(To be continued.)

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*Notes on the Zoological Gardens at Cologne and Antwerp.*

By J. JENNER WEIR, Esq., F.L.S.

DURING a visit made to the Continent last year I visited the Zoological Gardens at Cologne and Antwerp, and was very much pleased with the general arrangement of both those establishments.

At Cologne the gardens are small and the collection of animals not very extensive, but amongst them there were several of both great interest and rarity.

There were two very fine grisly bears, a male and female; the former a large animal, but he fell short of the huge specimen formerly in the Tower of London, which ended his days in the Gardens of our Zoological Society.

There was also that very curious animal, the saiga, which, although an European species, is rarely seen alive in collections.

I was very much pleased to see the two species of bison well represented and placed side by side: the Lithuanian aurochs had bred there. The specimens, five in number, looked very healthy, and both in shape and colour differed materially from the American species. The auroch also has not nearly so much mane, and is throughout the body a less shaggy animal.

Great attention appeared to have been paid to the smaller species of warblers: these were numerous represented, and among them I observed a specimen of the bluetthroated warbler—a difficult bird to keep in confinement, but it was in perfect

health. Upon the whole the gardens at Cologne seemed to be well laid out, and the health of the different species exhibited was good.

The collection at Antwerp was very much finer than that at Cologne. The gardens did not please me so well: I cannot say I admire the plan of making the architecture of the houses in imitation of the style prevailing in the countries where the species exhibited are indigenous.

The Antwerp Gardens were very rich in hollow-horned ruminants. The names of the following species will give some idea of the extent of the collection in this respect:—

Two *Ægoceros unctuosus* from Senegal.

Two *Hippotragus equinus* from Central Africa. These were very grand animals, with fine spreading ears, even larger than those of the koodoo.

Two *Acronotus bubalis* from Sahara.

One *Alcephalus Caama* from South Africa.

One *Addax nasomaculata* from Nubia.

One *Catoblepas Gnu* from South Africa.

One *Damalis albifrons* from South Africa.

Four *Antilope cervicapra* from North India.

Two *A. Isabella* from South Africa. This species I have always found to be rare in collections.

Three *Oryx leucoryx* from Central Africa.

One *Tragelaphus strepsiceros* from North-Eastern Africa. This rare animal was in a fine state of health.

One *Tragelaphus sylvaticus*.

Three *Oreas canna* from South Africa. These were fine specimens.

One *Cervulus moschatus* from South Africa.

One *Cephalopus*, but I am not certain of the species.

Three *Ovis tragelaphus*. One, an old male, was a grand animal.

One *Bos americanus* from North America.

One *B. frontalis* from North-Eastern India.

Four *B. grunniens* from Thibet. I had never before seen so good a collection of yaks.

There were three specimens of the new species of buffalo from the Gaboon, *Bos pumilus*. This species I had never seen before; it is widely distinct from the common buffalo, and I have little doubt is a good species.

Two of each of the two species of camels were there, and five giraffes: these latter were exhibited in a glass case.

The larger pachydermata shown consisted of two African and three Indian elephants and one *Rhinoceros indicus*.

The Suidæ consisted of one *Chæropotamus penicillata*, one *Docotyles torquatus*, one *Sus scrofa*, and an unusually fine pair of *Phacochærus Æliani*, the male with immense tusks.

I never saw a better collection of zebras: there were two *Equus Zebra*, which seems very rarely to be obtained in these days, although certainly commoner in collections thirty or forty years ago.

Three *Equus Burchellii*.

One *E. Markhami* from South Africa. This was a very interesting animal. I scarcely know whether to think it a variety of *Burchellii* or a distinct species, but I incline to the latter view. It was striped somewhat like *Burchell's* zebra, but the upper part of the hinder quarters was dappled and not striped, the spots being quite distinctly defined. I should like to have had time at my disposal to have examined more closely this very beautiful animal.

There was a very good collection of birds; but I was most pleased to see the rare *Crossoptilon Thibetanum*: this very remarkable pheasant I had never seen before, and feared I never should see it alive: it was placed next to *Crossoptilon auritum*: the comparison was all in favour of the former bird. It is worthy of notice that in a group like the *Phasianidæ*, where nearly all the species are more or less brilliantly coloured, that these two sober-coloured birds should be found. *Thibetanum* has a prevailing delicate gray colour, with a complete absence of any markings on the feathers, like the pencilling we find in the true pheasants. The same peculiarity of colouring obtains in *auritum*—a much darker bird.

The collection of cranes was very good—not so numerous in species as that in our Zoological Gardens, but represented by larger numbers of two species. There were exhibited—sixteen *Grus Antigone*, fourteen *G. leucogeranus*, two *G. americanus*, two *G. Struthio*, two *G. Virgo*, two *G. paradisea*, two *G. Balearica*, two *G. Regulorum*.

I might extend these notes further, but I think enough has been said to induce any naturalist who may be at Antwerp

making a visit to the Zoological Gardens there one of primary importance.

J. JENNER WEIR.

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*Notes from Castle Eden.* By Mr. JOHN SCLATER.

(Continued from Zool. S. S. 4332.)

NOVEMBER, 1874.

*Purple Sandpiper.*—On the 2nd I got another of these birds on the beach.

*Redthroated Diver.*—On the 5th a young bird, a female, exactly corresponding with Bewick's "lesser imber," was shot on the beach. On the 9th another young redthroated diver was brought to me alive from Hartlepool, where it had been shot, but seemed little the worse. It arrived just as I was mounting the one I had, and was placed on the carpet beside me; so I left off to examine it carefully. Its first keen, weird look seemed to say to me—"You had better drop shooting and stuffing us if you cannot make us more like ourselves. Cannot you see that those eyes—although of much the same colour—are nothing like mine? they were so, but now they are round—mine are oval; they look as if they could jump out—mine do not seem to project beyond the eyelid; and I am certain you cannot imitate them. And now I am anxious to see whether you are going to attempt to make my namesake stand upright; and if so in what position you will put her feet and toes. I would perhaps have shown you, but the mishap I met with at Hartlepool has made that impossible, and I can only now lie as a 'flounder flat.' I cannot show you my legs, or you would want to know why my shins should be continued so far above my knee. My ankles, you see, are kept pretty close together near the root of my tail *above*; for if you will lay me on my back you will find they are hidden by the lower part of my body; then hold me upright, and you will see that I am obliged to turn my feet and toes out to an angle of not less than  $160^\circ$  when standing on my feet: in this position my body would be nearly perpendicular, and if you make me stand on my toes,—which certainly gives more room for my tail,—you will find that my ankle-joints will bend backwards, and you must allow me to lean a little forward. Now, after the hints I have given you, if you do not succeed, then

the next of my kind that comes into your hands, just pluck the feathers off and wire up in the flesh, and then you will succeed if success is in you." This bird frequently uttered a "qua, qua, qua," much resembling the domestic duck in tone of voice. It never made the least attempt to fly or go towards the window: its eye was chiefly directed to the open door and darkish passage, and it often made towards it in the most awkward style,—raising the body with the wings, which, by a sudden muscular action, were lifted up, only to come down again with cruel force on to the floor,—rarely proceeding more than a few inches; in this effort a sort of crawling motion was given to the feet, and the toes were kept closed, which, taking no hold of the carpet, did not aid in the least to propel it forward. I would gladly have kept the bird alive, but I could not persuade it to eat anything, and as it had been already kept two days without food,—and I had no place at hand to witness its actions in water,—I killed and stuffed it, all the better, I hope, for the information it had given me. On skinning it I found no less than five No. 5 shot in the neck, one in the wing, and one in the lower back: there was no outward sign of injury, for when these sort of birds are shot there is generally sufficient down driven in by the shot to plug up the wound and prevent bleeding. But one word as to the killing of such a bird as this—will any one point out which is the most humane way, so as not to injure the plumage or skin? I usually kill birds for stuffing by pressure; but in these sort of birds it is really such a long and cruel process—in fact, something like trying to squeeze the life out of a foot-ball—that I shall be glad of information on the subject.

*Grebe.*—I examined the remains of a grebe,—picked up on the beach about a week ago,—and, judging from the size of the bird and markings of the few feathers, I am pretty sure it was the rednecked species.

*Wild Duck.*—A pair shot on the 10th: I found that the male had a broken wing; the bone had strongly knit together, and though rather curved it could not be detected in the bird's flight. This appears not to be an uncommon occurrence: I have twice found instances of it in the goosander; the tarsi, on the same side as the injured wing in one of these ducks, had been broken, and had strongly united by growing a sort of splint over the part. It has always puzzled me how these poor birds get on, and how the

bones are kept in their places until they heal, even if they keep on the water all the time.

*Water Rail.*—One shot near the Dene on the 13th: they are seldom met with here.

*Chimney Swallow.*—On the 21st my sons saw two flying about over a pond, sometimes settling on the trees: previous to this the 6th is the latest I have ever known them to stay.

*Bittern.*—On the 28th a beautiful bittern was brought to me, two hours after it was shot, without a stained feather, the wing only being broken. It was shot in the Wingate Woods, adjoining Castle Eden, and was seen and fired at the day before, when passing overhead—out of shot, it was said. I was very glad to commence operations on a bird like this, as it is not known to have occurred in this neighbourhood before. It proved to be a male, and probably a bird of the year, measuring only twenty-seven inches and a half in length, but its very perfect condition made up for its diminutive size. The gamekeeper who shot it told me that when he went towards it, the bird seemed to “put its head down its throat.” This brought to my mind Selby’s remarks on the position of the head and neck of the bittern, and in mounting it I have followed his example, as in skinning it and examining the structure of the neck I had little doubt as to the correctness of his observations. The four joints nearest the head are stiffish, and have little or no back action; the next six are very free, working like links in a loose chain; the tenth and remainder are like the first four, so that by putting the head back towards the shoulders the fourth joint rests comfortably on the tenth, the six loose joints between hanging like a loop: by putting the head and neck into this position I found that the gullet passed backwards (on the right side, as usual) at the fourth joint and came again to the front at the tenth. It seems to me that by this arrangement the gullet, when distended with food just swallowed, will have much more freedom and less pressure put upon it, by being shortened, as it were, and the food carried above the neck in the loop. Selby and Yarrell’s description of the habits of this bird when at rest are so much alike that they seem to have been written by the same pen; with this one exception, however,—Yarrell says, “It remains with head erect in thick beds of reeds,” &c. Selby says, “with the neck bent, so that the head rests between the shoulders,” and in his description of the plate adds, “or when seeking its prey

amongst reeds or long herbage." It is curious how these two authors should so differ on this point, and it is very material that the matter should be cleared up. Will some one who has been so fortunate as to watch their habits tell us which is right? Selby wrote that this bird "was the well-known and (by the superstitious) dreaded inhabitant of all the marshes and extensive quagmires throughout the country;" adding that, in his day, "the capture of a bittern is, in many parts of England, a subject of great interest;" but he would hardly have believed that these superstitions would last till now. I hear that one good gentleman, when told of its appearance in this neighbourhood, became very excited on account of the prophecy of Isaiah (xiv. 23). I have only to add that I did not let the opportunity escape me of testing the quality of the flesh of the bittern as an article of food, and therefore cut as many collops as I could, had them well stewed and served up for breakfast, when two ladies, as well as myself, testified to its excellence; and, judging from the manner two brown owls picked the bones, it was evident that they would have liked some more of them.

#### DECEMBER.

*Condition of Birds in the Dene during the severe Frost.*— Since the 1st of this month immense numbers of wood pigeons have settled in a fir plantation bordering a field of turnips, on the tops of which they feed: the field is sometimes covered with them, and when scared the noise of their wings on rising more resembles a continued crash of falling timber than anything else I know of. Large flocks of fieldfares and redwings appeared simultaneously with them: I think I have never before seen so many fieldfares, nor have I ever observed them so unsettled and wild in severe weather; they soon consumed all the berries: both the fieldfares and the wood pigeons disappeared on the 15th, the snow then being nine or ten inches deep. On the 18th and 19th I walked out for two hours and a half each day, and did not see a single wood pigeon, not more than half-a-dozen fieldfares, no redwings, five or six male blackbirds, a few missel thrushes, Royston crows, bullfinches, the great, blue, marsh, cole and longtailed tits—but for these the Dene might be said to be birdless. I had forgotten, however, the little goldcrest I saw in company with the longtailed tits; and how these little mites manage to keep up circulation in this weather puzzles me. The song thrush has also entirely

disappeared: I have not seen one since the beginning of the month, and have never known this to occur here before: I did not see the usual large additions to their number in the autumn, and think the northerners must have only paid a flying visit later on, and found their relations ready to accompany them to more hospitable regions. The finches, as usual, are collected in large flocks at the farm-houses, where they always obtain plenty of food—but so do the cats. The partridges, too, are obliged to throw off their shyness and visit the stack-yards: it is difficult to feed these poor birds in a continued snow-storm; should it last much longer it will certainly kill most of them: I have seen many in a very weak state. The other day one of the keepers picked up a woodcock, nearly dead from starvation. I never saw the starlings in such a pitiable condition; the few that come amongst other birds to my window—where I put out hot food four times a day—have their wings hanging down bedraggled, as if they have not strength to keep them up, and they are sadly bullied by the male blackbirds; only one female of the latter have I seen for some time, and they are all male starlings, too, so I strongly suspect that the females of both species have left this place. The male blackbird seems capable of great endurance, and, besides being bold and hardy, he is a thoroughly selfish fellow. I feed the tits by hanging out lumps of suet on the end of a long hazel stuck into the ground: it not only enables us to see them feed, but keeps the food safe from rats and other ground vermin, and thus lasts several days. After the blackbird has crammed himself as full as a tick he will not allow the tits to rest, but keeps charging them, always trying to stick his bill into the suet to carry it off; he sometimes succeeds in breaking off a piece, and then there is a scramble for it: one of them got up to it so far as to remain on the suet a short time, by alighting on the top and catching the string with his foot, and keeping his wings going at full speed.

*Kingfisher.*—On the 28th a kingfisher was shot and brought to me. There is only one small stream near here that these birds frequent, and I have never seen more than a single bird at any time: I think they would breed there if let alone, but it is really impossible to make the clowns who shoot them believe it: they consider them “furrin birds.” The first intimation of one of these birds having been shot generally greets me thus:—“Ha’ ye hard what a grand burd (so and so) shut?—a’ dar say it’s a’ cullers.

(So and so) seen 't, an' says it's a furriner mavies escap'd fra some menagery."

*Yellowhammer.*—On the 31st I saw hundreds at one of the farms. They did not seem to mix up with the finches, but moved together in flocks when disturbed. I was at the place on the 26th, and only saw a few mixed up as usual with the other birds.

*Rook.*—I went with the shepherd to see the rooks feed amongst the sheep on Swede turnips: there is really nothing else for them to get, as they are scared from the corn stacks. Poor creatures! they must go to roost very tired after hammering at the hard turnips all day.

So ends 1874, with two feet and a half of snow and a hard frost—a sorry day for the feathered tribes at least.

JOHN SCLATER.

Castle Eden, Durham.

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*A Word about Museums.* By C. B. CAREY.

(Continued from S. S. 4059.)

SINCE my last notes on museums, I have visited two more, which, it seems to me, are worth hearing about: one is the museum at Bristol, the other is the one at York.

*Bristol.*—The Bristol Museum is a fine building, in which there is a public library, where any one may go and read, not taking the books away. The arrangement here seems very good; but the birds are classed generally—*i. e.* the British birds are not kept separate. It may perhaps be narrow-minded, but I think that the British birds should be kept distinct from the foreign; for after all, one object of the collections of birds in our museums is to show the habitat of each bird. This can indeed be shown by writing it on the label; but it is easier to see those which are British by having them alone. On the other hand, a general collection of birds is not complete without those of the British Isles; so that, to please all parties, it would be well to place the British birds in the general collection, and at the same time have one of British birds alone. The birds at Bristol are not in separate cases, but are on shelves, in cases, which jut out so that one back serves for two, having a face each way; these are in rows down the room, having a side-light. The birds themselves seem in excellent condition; everything about them looks clean and well cared for,

and there is evidently an interest taken in the museum. The most minute information is given on the labels, in which different coloured inks are used: they are very neat, and not monstrous in size. This is a pleasant museum to visit.

*York.*—The museum at York is the best of any I have had the good fortune to see; the arrangements are excellent—the taste is exquisite: as a matter of artistic arrangement alone the ornithological department deserves notice. The position of the museum is remarkably pretty, standing as it does near the ruins of St. Mary's Abbey, and having well laid-out gardens about it. There are no less than three collections of birds in this museum—the general collection, the Rudston Collection, and the Strickland Collection.

The general collection is clean, tidy, and well cared for. There are a great number of birds in good preservation, which individually wanted more time for a closer examination than I was able to give: their labels are small and contain all necessary information: they are ranged on shelves in a gallery, to which there is a staircase. This gallery runs round one of the rooms, so that there is great economy of space, while at the same time the birds have an excellent light from the skylight.

*The Rudston Collection.*—Here is art indeed. This collection is in a room by itself: the light is from a skylight, which has a glass top and glass sides. The mistake here is that a blind has been drawn across the top glass, so that the light after all is from the sides. It is a pity, in so well arranged a collection, that this should have occurred, as it prevents one from thoroughly enjoying it; for one is obliged to look through one's hands, as if looking out of window on a dark night; but here the birds are arranged with so much taste that it well repays the trouble of thus looking at them. There is a large case against each side of the room, in which the birds are placed. There is one case of quadrupeds. The backs of all the cases are brown—not white: this gives an air of cosy comfort to the room, for it does not look so like a pauper lunatic asylum as so many of the bare whitewashed museum-cases do. What the material used is I cannot say, but I very much suspect it to be crinkled brown paper, sanded; the bottom of the cases is of the same material and colour. The birds are not on shelves, but those which require raising are on rocks, so that all of them can be seen at the same time: there is not a straight line of birds. The labels are fastened on to each bird, and are as

small and unoffending to the eye as possible, but they are quite large enough to give all requisite information. The small birds are on branches, with their labels fastened beneath each. The waders are standing on stony rubble with tall reedy grass about, the ducks and divers looking just ready to waddle off from their rough ground into the water, which could not be seen, and the gulls and sea-birds resting on the brown sea-shore. The birds seem to have had their various tastes consulted, and to have been made as comfortable as possible. I must not omit to mention that in the Rudston Collection I noticed various little cups in which was a red fluid: on going near to one of the keyholes I was enabled to discover, by the smell, that it was carbolic acid, and concluded that Condyl's Fluid was the disinfectant: I do not know whether this keeps off the moths, but I did not see any.

*The Strickland Collection.*—From the Rudston Collection one goes up a winding stair to the Strickland Collection. Here one stands in astonishment, not so much at the beauty of the thing as that one building could at one and the same time contain two collections, the one so excellently arranged, the other so execrably put up. Each bird has its own case—or rather, it would be better to say, each other's case, for they look as if they had hurriedly bundled into any case that came first to hand and were trying to make the best of it. One spoonbill had been squeezed into a case among the Insectores: a diver had its case so narrow that it was forced to stand on its legs and tail, but then its neck proved too long, and it had to bend its head in meek subjection to the top of the case, looking not unlike a melancholy pelican stripping off its feathers.

There is another room in which there are shelves of bird-skeletons: these seem in good preservation and well cared for.

The arrangement of the birds' eggs,—as well as that of the butterflies and other insects,—struck me as being particularly good. There are desks down the room; these are double,—that is to say, they open on both sides,—and where the schoolboy would keep his books are the birds' eggs and insects. In this way they are kept from the light, and are in excellent condition.

Both Bristol and York museums are still living ones: Time has not as yet buried them in the dust of dead energies.

*On the Birds of New Zealand.* By T. H. POTTS, F.L.S.

(Read before the Philosophical Institute of Canterbury, December 4, 1873, and communicated to the 'Zoologist' by the Author.)

IN offering another small budget of notes on native birds, the writer has to express his regret that they are but fragmentary. Unfortunately notes on birds in their wild state are necessarily less complete than those which can be gathered from the fluttering prisoners in the condemned cell of an aviary. The writer having been laid under contribution by Dr. Buller, in his 'History of the Birds of New Zealand,' is compelled to refer to some mistakes as to matters of fact in the 'History,' or else he might be thought to concur therein; as to theories, they are the property of any one to shape according to fancy.

*Quail-Hawk* (*Falco Novæ-Zelandiæ*).—Those ornithologists who have written on the Fauna of New Zealand have held conflicting opinions on the Falconidæ. Attempts have been made to prove that one species only inhabits these islands; on the other hand, evidence has been offered that the Fauna includes at least two species. The question involved—of much interest to those who care for the Natural History of this country—has its chief difficulty in the absence of such marked or distinctive characteristics of form and colour as would enable ornithologists to recognise at once a specific difference. Messrs. Finsch, Gurney, Hutton and Buller have given their opinions, *pro* and *con*, but outside the value of the evidence that may be got from the critical examination of specimens, there remains for consideration the weight that may be attached to certain peculiarities that can be learned from the birds themselves. Are these peculiarities sufficiently marked to justify a separation of our Falconidæ into two species? The three writers just named, as far as we are aware, do not touch on these birds in their living state.

Dr. Buller's evidence must be sifted to ascertain its value; he deals with the living bird, and, at present, inclines towards the maintenance of two species. In the 'Transactions of the New Zealand Institute,' vol. i., p. 106 (1868), he writes:—"In a paper forwarded to the Philosophical Institute of Canterbury, in June, 1864, and again in the Essay, I stated my belief that, on a further acquaintance with the species it would be found necessary to expunge *Hieracidea brunnea* from our list of species, and to regard

it as *H. Novæ-Zelandiæ* in an immature state. \* \* \* Since the publication of the Essay I have been able to determine satisfactorily this disputed point. In December last, during a visit to the Taupo district, I was fortunate enough to discover a nest of this hawk, containing three young ones. The parent birds were beautiful specimens of *H. Novæ-Zelandiæ*. \* \* \* One of them shortly afterwards died, but the others (which are still alive in my aviary) developed in due time into perfect examples of the so-called *H. brunnea*. It will be seen, therefore, that this form is the young of *H. Novæ-Zelandiæ*, and not the female, as suggested by Herr Finsch." In striking contrast to this statement, we find his notice of the Falconidæ in his 'History of the Birds of New Zealand;' at p. 9, the story of the inmates of the nest found in the Taupo district is given as a portion of the history of *H. brunnea*. Now, will this fresh view of these nestlings induce us to rely that Dr. Buller has "been able to determine satisfactorily this disputed point"? In the Introduction to the 'Birds of New Zealand,' p. xv., may be found this passage:—"Thus Dr. Haast writes to me (under date of March 10, 1872), concerning the specific distinctness of the sparrow-hawk and the quail-hawk. I may tell you that on my last journey into the interior I got two of the former (*i. e.* the small species). They were male and female, and I secured them at the nest, where they had young ones. The female was a little bigger and lighter than the male bird. Both birds were *full-grown*, and showed at a glance the impossibility of their ever developing into the large and perfectly distinct quail-hawk." This reads like strong evidence in favour of the two-species theory; but there must be some mistake in this statement. These two birds were shot by Mr. W. P. Phillips, then manager of the writer's cattle-station on the Upper Rangitata, whilst they were assailing the poultry close to the house. Mr. Phillips, who killed them, preserved their skins, and presented them to Dr. Haast, who did not know of a falcon's nest, and made a guess at the sexes of these specimens. From the station journal it was ascertained they were killed on the 10th of February. These two falcons are in the type collection of the Canterbury Museum, and, in the opinion of the writer, are birds in their first season.

In support of the maintenance of the two-species theory, the following information is submitted. In November, 1868, two nests were found on the Lake Coleridge Ranges. The young were

captured when quite small by one of Mr. Oakden's shepherds, and both families presented to the Canterbury Acclimatization Society. Mr. Oakden stated to the writer that the birds from the one nest were readily distinguishable from those of the other nest, even from first; in size there was a marked difference,—perhaps of about one-third,—this contrast of size being maintained up to the time when some of the birds were shipped for export to England. The writer has seen numbers of both species, and has a series of many specimens that have been collected in the course of some twenty years. In life, besides the marked difference in size and in robustness of frame, the sparrow-hawk (*Falco ferox*) looks flatter about the head and carries the wings more prominently forward, this carriage giving the bird a less rounded appearance than is observable in the larger species. The smaller falcon is more savage and resolute, swifter in flight than its congener, and will soon rid a pigeon-house of its inmates.

Last December some very robust specimens of *Falco Novæ-Zelandiæ* were observed by the writer about the south-west coast of this island. Those birds were observed on some occasions to pursue sea-gulls. Two females, shot in Preservation Inlet, measured as under:—

Total length.	Wing.	Tail.	Tarsus.	Spread of wings from tip to tip.
No. 1.—18 inches.	11 inches.	7·8 inches.	2·9 inches.	32 inches.
No. 2.—18    ,,	11·5    ,,	8·5    ,,	3·2    ,,	35·4    ,,

Habitat, rocks and cliffs towering above the sea. From the crop of one specimen was taken the remains of a very large rat, one hind leg of which had been swallowed whole. These very robust specimens of our larger falcon could not well be identified with the same species as the light, dashing little sparrow-hawk.

If the cabinet ornithologist will not permit the Fauna to possess two species, *Falco ferox* = *F. brunnea* must be the young state of *Falco Novæ-Zelandiæ*: in this case we must try to believe that the greatest boldness and audacity in attacking, the greatest activity and swiftness of wing in pursuing, is exhibited by the quail-hawk before it has reached its adult state; neither may we have regard to the difference of size which specimens of either sex very often present.

Near the Ashburton one of the writer's sons, Geoffrey Potts, saw a large weka (*Ocydromus*) successfully attacked by a quail-hawk.

Noticing the swoop of the falcon, he rode up in time to pick up the weka at its last gasp; the fatal stroke had been dealt on the head and neck, from which a few feathers only had been displaced. This hawk displays much dexterity in cutting off a single bird from a flock, whether of pigeons, kakas or parroquets. The pursuit of each species seems to require the bird to call in aid some special method of attack; the chase after the noisy screaming kaka, so often turning in its laboured flight to ward off the impending stroke, differing from that after the silent, strong-winged pigeon, as much, perhaps, as either varies from the pursuit of the parroquet. Perhaps the quail-hawk shows nicety of calculation of the requisite force of its stroke, combined with the greatest neatness of execution, in surprising a kingfisher whilst perched on a telegraph-wire. We have known the newly-settled Australian magpie (*Gymnorhina*) defend itself successfully by throwing itself on its back, striking out with beak and claws, and shrieking most wildly.

*Sparrow-hawk* (*Falco ferox*).—We have the egg of this bird from the Paringa river, Westland. A nest was found up the Ashburton Gorge, on the bare ground, sheltered by a snow-grass tussock; it contained one egg partially incubated: one of the old birds was knocked over with a stone, and the flesh of the broken wing was found to be infested with parasitic worms.

December 28.—Found young birds up the Lawrence river able to fly some hundred yards or so: they were most stoutly defended by the parent birds acting in concert: with almost ceaseless swoops and with noisy screams they tried to stay our intruding steps: the young had been fed on larks (*Anthus*).

The domestic pigeon affords a fine chase for this falcon: every nerve and muscle is strained to the utmost in the flight, the efforts of the pigeon being directed to prevent the hawk from getting the air of it, whilst the pursuer dashes on regardless of everything but the quarry. Although the pigeon often saves its life for a time by dropping into cover, yet in the end the hawk almost always gets the wearied pigeon. We have known the sparrow-hawk in the month of June (winter) pursue its prey early in the morning by the light of the waning moon. We have approached close to the bird after a chase, and have noticed that it has a habit sometimes of resting on one foot, drawing up the other foot to the breast, then slowly stretching out the leg, like an athlete trying his muscle. Sometimes, when the bird just alights, or when it is perched on

some weak or slender bough, the tail is held almost horizontally; when at rest we have noticed that sometimes the tail is pressed against the perch. The writer could multiply instances of the occurrence of *F. ferox*, and give more notes of the bird it preys on, but *cui bono*? There will still be found the same uncertainty in the minds of many as to the existence of one or two species, which doubts may last till the genus is improved from off the face of the earth. Up the Waio river, South Westland, at breeding time, these birds have been known to chase cattle-dogs to the shelter of the stockman's horse.

(To be continued.)

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*A few additional Notes on the Habits of the Flying Fish.*

By FRANCIS SMITH, Esq., R.N.

(Communicated by Gervase F. Mathew, Esq., R.N., F.L.S.)

I HAVE just received from my friend, Mr. Francis Smith, R.N., of H.M. ship 'Repulse,' a copy of some interesting notes on angling for flying-fish and on their motions under water, and I forward them on at once to you for publication in the pages of the 'Zoologist,' as I feel sure that any fresh observations on the habits of this curious fish will prove acceptable to many of your readers.

*Angling for Flying-Fish.*—"The monotony of a sea cruise was pleasantly broken on the 25th of January by an occurrence so unusual as to excite the wonder of our oldest sailors. We were on our way from Payta, Peru, to Callao, and had had very light winds since we left port, a week before, and on the day in question the wind had dropped, there being scarcely enough even to ripple the water. A large shoal of flying-fish kept by us all day, and afforded excellent sport during the afternoon. A variety of baits were employed in their capture—bits of red bunting, small spoon-baits, and artificial minnows and flies, the most taking being a large red fly and a small gilt minnow, but all the baits mentioned caught some. In following the minnow through the water, the fish would open both pectoral fins and poise themselves for a rush at it; spreading the wings also had the effect of checking their progress if their suspicions were aroused by a near inspection of the bait. When hooked they proved very game fish, taking out

several yards of line in their first rush, and often taking a flight in the air, line and all.

*Motion of Flying-Fish under Water.*—"The motion of this fish under water is peculiar. The tail is its chief means of progression, the large pectoral fins being usually folded and laid along the side of the fish so as not to be discernible. Every now and then the pectoral fin on *one* side is slowly expanded to its full extent, for the purpose, it appeared, of simply stretching them for exercise, as they swam on without turning with the fin open. The effect of this expansion was exceedingly striking and pretty, the fin looking like silver, and when several of the fish were in company the flash caused by a fin being opened, now here, now there, now on one side of a fish, and then on the other, heightened the effect considerably. It was curious to note, when the expanded fin was closed, how completely it disappeared, altering the appearance of the fish entirely. Towards the evening a light breeze sprang up, and the fish went away from the ship. No one on board had ever before seen flying-fish out here remain for so long a time round the ship, and their taking a bait so readily was thought a novelty."

FRANCIS SMITH.

H.M.S. 'Repulse,' at sea, lat. 6.56 S., long. 81.5 W.

January 27, 1875.

In addition to the above, Mr. Smith remarks, in a private letter, that he has endeavoured to give some idea of the movements of the pectoral fins of flying-fish, on account of his observing, in Wood's 'Natural History,' that it had not been determined in what manner these organs were used when the fish were progressing under water, and therefore hopes his remarks may throw further light on the subject.

The fish which afforded so much sport to the officers and crew of the 'Repulse' were probably on their way to their spawning grounds among the rocks of the Chincha Islands, where Mr. Howard Saunders (Zool. S. S. 3838) noticed them in vast numbers about the last week in March, and I have no doubt that they also breed abundantly among many other of the little-known islands of the coasts of Peru.

GERVASE F. MATHEW.

H.M.S. 'Britannia,' Dartmouth,

March 17, 1877.

*Basking Shark off Shanklin Chine, Isle of Wight.*

By Captain HENRY HADFIELD.

A MAGNIFICENT male specimen of this gigantic fish was stranded on the 27th of February, on the "Ledge," a narrow reef jutting far into the sea, half a mile or so to the westward of Shanklin Chine. It was first observed by a fisherman at 11 A.M.; and I was informed by an eye-witness that little more than the tail of the fish could be seen as it lay suspended on the rocks, where it had, doubtless, thrown itself after grounding, in its struggles to escape, the head and anterior part of the body being submerged, and swaying to and fro amid the breakers. It was generally supposed to be a whale, and was announced and placarded as such, though bearing no resemblance whatever to a whale, except in size. Though full of life, and apparently uninjured, it made no resistance to a tow-rope being attached, allowing itself to be dragged quietly along; but when landed there was no moving such a monster by manual force, though the attempt was made by some forty or fifty men, but the rope—one of considerable size, too—snapping, sent the whole crew on their backs, and horse-power had to be resorted to to drag it out of reach of the tide. The cause of its grounding has been accounted for in various ways, some saying it had been stunned, others that it was a weakly fish cast on the rocks; but there was no appearance whatever of any injury sustained, and it was a fine healthy-looking fish, in good condition. My opinion is that, in pursuit of prey of some kind, that dark snowy morning, it chanced to run on that prominent ridge; but, whether in search of food or not, it must have been swimming at a rapid rate to have been propelled so far on the rocks, for had it merely grounded the flowing tide would have helped it off.

There has been much speculation as to the food of the basking shark: Couch says, "it is not known," but quotes an Orkney newspaper, wherein it is said that a captured fish of this species "*seemed* to have taken a mouthful of herrings." I am inclined to believe that it feeds on sea-weed, though nothing but a glutinous substance of a yellowish white colour was found in the stomach of this specimen and the great width of the intestinal canal (eight inches) tends to prove that it is a vegetable feeder. Having secured a small portion of this adhesive and glutinous substance, it was submitted for

microscopic inspection to a scientific friend, of great experience, but nothing could be detected or distinguished: on my suggesting that it might possibly be sea-weed, he said that the glutinous matter was not unlike decomposed seaweed. So the basking shark, like the lobster, crab and many other Crustacea, may feed on the *Iridea edulis* or other species of Fuci—*Fucus vesiculosus* and *Laminaria digitata*, for instance. The matter contained in the sporules of the genus *Fucus* is of a glutinous nature, somewhat resembling the substance in question. If feeding on herrings, it is not to be wondered at that these stray fish are generally found with empty stomachs, as sharks must necessarily, from their peculiar manner of feeding, endure long fasts; for what fish could they capture, except in a shoal, or found napping, seeing that they have to turn well nigh on the back to enable them to seize their prey? The blue shark will swallow almost anything that comes in its way, and I have seen newspapers, among other strange things, taken from its maw; but though so voracious it is not so savage as the common ground shark of the southern coast of India, one of these having bitten off at the thigh the leg of a young officer, a fellow passenger of mine, while bathing in the Madras roads.

Though captured at the early hour named, this fish did not die till late in the day, the eye having been observed in motion; but all sharks are tenacious of life and die hard; for instance, one captured and hauled on the deck of an Indiaman showed symptoms of vitality long after the head had been severed from the body, and a sailor who had incautiously handled it had his fingers transfixed, the teeth penetrating the nails, inflicting a severe wound.

Unlike other species of the family, the basking shark—like the ray, skate and thornback—has two bony and muscular appendages between the ventral fins; they are four feet in length, slightly incurved and of the size of a man's thigh at the base, but gradually decreasing and tapering towards the extremity, where there is, on the inner surface, a longitudinal cup-like cavity. These claspers are of a brownish black externally, and of a pinkish flesh-colour—internally and externally too—at the extremities, but there is nothing red about them, as in Couch's figure, nor are they larger at the extremities than at the base, as represented, but the reverse. There has been some discussion as to the use of these claspers, and it is somewhat strange that this shark should be the only one of the tribe that has these appendages, unless these arm-like appendages

assist the fish in a particular way of feeding. Its minute and feeble teeth, of which there are six rows, tend to show that it is not a preying or voracious shark; they are barely a quarter of an inch in length and two-tenths of an inch in width, one measuring but two-tenths in length, the root rounded, and two-tenths of an inch beneath the gum.

Individuals of this species must vary greatly in size and colour. If Couch's plate is a correct representation. This fish is of a dull brownish or dusky black on the head and back; sides and fins some shades lighter; under parts grayish. Dr. Fleming says the skin is smooth, but had he handled this individual fish he would have found the scales (?) rough and spinous, cutting the fingers so as to bring blood; the skin is about half an inch in thickness, hanging in loose folds above and about the lower fins, and is more like that of the hippopotamus than of a fish. Both above and below the tail there is a peculiar-looking indentation. Neither the head nor the snout is rounded enough in the figure referred to, nor are the pectoral fins of sufficient length; but the upper lobe of the caudal is, proportionately, much too long; and Couch's plate gives one no idea of the vast size, proportions, or power of this, the most gigantic of all true fishes, dwarfing all quadrupeds, too; so that the elephant, rhinoceros and hippopotamus would, if laid along side of it, appear but mere pigmies. There are five immense gills well nigh encircling the head; they are comb-like, black, and resembling whalebone, fringed or covered by a peculiar-looking leather-like flap of about two inches in width. The eye, which is said to resemble that of an ox, is one foot and three inches from the snout; and the nostril, which is very small, is two feet and eleven inches from the nose.

The dimensions are:—

	Feet.	Inches.
Length from snout to the end of the tail - - - -	28	10
Greatest circumference of body between dorsal and pectoral fins	15	0
Circumference below the ventral fins - - - -	5	6
Length of head - - - - -	6	10
„ upper jaw - - - - -	3	2
„ lower jaw - - - - -	2	4½
Width of mouth - - - - -	1	10
Height of first dorsal fin - - - - -	4	0
Width of first dorsal fin - - - - -	3	2
Height of second dorsal fin - - - - -	1	4

	Feet.	Inches.
Width of second dorsal fin - - - - -	1	0
Distance between the first and second dorsal - - - - -	6	9
Length of pectoral fins - - - - -	5	6
Width of pectoral fins - - - - -	2	4
Length of ventral fins - - - - -	2	9
Width of ventral fins - - - - -	3	0
Length of anal fin - - - - -	1	3
Width of anal fin - - - - -	1	2
Length of claspers - - - - -	4	0
Upper caudal fin - - - - -	5	10
Lower caudal fin - - - - -	(about) 4	5
From point to point of lobes - - - - -	„	7 0
Orifice of eye - - - - -	0	2½
Diameter of the back-bone - - - - -	8	0

The liver, the lobes of which measure thirteen feet in length, yielded about 102 gallons of oil. The skin has been secured for the British Museum at a cost of £15.

HENRY HADFIELD.

High Cliff, Ventnor, Isle of Wight,  
March 12, 1875.

[The claspers mentioned by Captain Hadfield in this very interesting communication are common to some other species of shark. The food of the basking shark has been the subject of some discussion, and Mr. Yarrell observes that no remains of fish have been found in its stomach. Mr. Low, in his 'Zoology of the Orkneys,' says, "The appearance, manners and weapons of this shark do not indicate it to be a ravenous fish." Every particular of its habits and diet are therefore of the utmost value to ichthyologists, who will be much indebted to Captain Hadfield for the pains he has taken.—*Edward Newman.*]

#### Common Rorqual on Shore at Happisburgh, on the Norfolk Coast.—

On the 1st of March a fine full-grown male of the common rorqual (*Balanoptera Musculus*, Linn.), was washed on shore at Happisburgh, on the Norfolk coast. I first saw it on the 2nd, but owing to the rough surf which was breaking upon the beach and the unfavourable position in which it lay, any close examination was impossible. The head was reversed and partially buried in the sand, so that the blow-hole was not to be seen; the body then slewed over nearly on its side, the tail portion again having the under part uppermost; in this position, the belly being towards me and very much distended,—the surf not allowing me to go to the other side,—

it was impossible to see either the dorsal fin or the flippers, and on a subsequent occasion, as will be seen, I was equally unfortunate. At a little distance the baleen was just visible in the open mouth, but I could not get near enough—for the reason already stated—to examine it. By dodging the breakers I managed to obtain a rough measurement of the total length, but by no means an exact one. On my second visit, a few days after, the whale was a perfect wreck: it was still lying upon its back, had been disembowelled, and, of course, the important parts were hidden; all the cuticle, which had before been perfect, was worn off by rough usage; some of the ribs were broken and protruding, and the lumbar vertebræ in some places exposed, the lower transverse processes often broken more or less; the smell, owing to the intestines having been removed and floated out to sea,—only to be stranded on another part of the coast,—was not so offensive as might have been expected, and I succeeded in cutting my way to the baleen, which was hidden by the skin of the throat, the lower jaw being uppermost; the plates were very much mutilated, dark slate-colour on the outer edge, shaded off to dirty white on the inside. The external appearance, so far as I could see it, agreed perfectly with the description in Bell's 'British Quadrupeds,' second edition, p. 400. The Rev. C. W. Roberts, of Potter Heigham Vicarage, kindly wrote me an account of his visit to the whale, but he was not much more successful than I was. On both occasions I tried to ascertain the total length, with different results, neither of which agreed with that given by Mr. Roberts, the bent and twisted position rendering it almost impossible to be exact: I think, however, seventy feet is very near the true length, and the tail measured, from point to point of the flukes, thirteen feet six inches. I cannot help expressing my regret that this fine specimen should be lost entirely to Science. This species has occurred on the Norfolk coast, at Lynn, in August, 1842; Winterton, January, 1857,—besides several other earlier instances,—and on the Lincolnshire side the Wash, in November, 1858. The smaller species, *B. rostrata*, has also been met with several times, *viz.*, at Runton, near Cromer, in 1829; Lynn, January, 1851; and at Overstrand, in November, 1860.—*T. Southwell; Norwich, March 11, 1875.*

**Hairy-armed Bat in the County Armagh.**—My friend, the Rev. George Robinson sends me word that one of his sons shot a hairy-armed bat in a field near the Rectory of Tartaraghan, County Armagh, not long since, also adding, "This is the second we have had."—*John Gatcombe; Lower Durnford Street, Stonehouse, January 19, 1875.*

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**Note on *Haliaeetus vocifer* and *Bubo capensis*.**—The following remarks may be useful in connection with Messrs. Woodward's interesting paper on the Zoology of Natal. *Haliaeetus vocifer* is quite distinct from the various sea eagles inhabiting America, Europe, Asia and Northern Africa, its

geographical range being limited to the African continent south of the tropic of Cancer, with the exception of the Cape de Verd and Canary Islands, where it is believed to have been seen, and also with the possible exception of a straggling specimen said to have occurred in Greece. A nearly allied, but distinct species, *H. vociferoides*, represents it in Madagascar. Two species of the genus *Bubo* inhabit South Africa—*Bubo maculosus* and *Bubo capensis*; the first, which is the more abundant species of the two, is exclusively South African, but the second has also been obtained in Abyssinia. Both are specifically distinct from the members of the genus *Bubo* inhabiting America, Europe, Asia and Northern Africa. *Bubo capensis* is also quite distinct from *Phasmptynx capensis*, there being no less than six different species of owls in South Africa, to which the confusing appellation of "capensis" has been attached by various authors. Another large horned owl, superior in size to *Bubo maculosus* and to *B. capensis*, also inhabits South Africa, and bears the name of *Hulma Verreauxi*.—*J. H. Gurney; March 5, 1875.*

**Siskin nesting near Durham.**—In December, 1874, I got a male siskin (*Carduelis spinus*), which had been taken the same year, when fledged, from a nest in a fir tree at Butcher's Race, Tudhoe, near Durham.—*Thomas J. Storey; Tudhoe, Durham, March 9, 1875.*

**Hooded Crow attacking Partridges.**—In the 'Zoologist' for March (S. S. 4381), I observe a notice of the killing of a redwing, on the wing, by a hooded crow—a fact thought worthy of record by the observer, Mr. Gurney. Several instances of an analogous kind have occurred either under my own observation or within the scope of my knowledge. The two most remarkable were connected with the partridge. In the one case, a small covey of partridges was sprung on one of my glebe fields, only separated from my house by a road. They flew over a dry stone wall, separating my land from my neighbour's, and on crossing this boundary passed immediately in front of two gray-backed crows, which were also on the wing. One of the latter made a dash at one of the partridges and struck it down. One of my sons and my farming man (the persons who had started the partridges) saw the deed done, and the partridge carried off by the crow. The other instance was related to me by one of my parishioners. He was coming to market from Fryup Hall, his then residence, to Castleton, and saw a partridge, pursued and hard pressed by a gray-backed crow, take refuge in a hedge almost close to himself and his horse. He dismounted and secured the partridge. He mentioned the facts to me himself, and I had then, and have still, the most entire confidence in the truth of his statement. I have myself seen a crow of the same species stoop at a peewit, having the advantage of a surprise, as in the case of the partridges on my glebe, but without effect. The peewits at this time of year are frequently violent in their demonstrations against the graybacked crows.—*J. C. Atkinson; Danby, March 20, 1875.*

**Pied Rook.**—A pied rook was captured at Henderswick, in the parish of Talland, Cornwall, on the 25th of October last. It was brought to me, and I kept it ten days, when I sent it on to the Zoological Gardens, Regent's Park, where I suppose it may now be seen. The forehead is white; the head slightly sprinkled with white spots; chin and throat white, with a sprinkling of white on the breast; two of the primaries on each wing white; two or more of the secondaries, as well as a few of the upper wing-coverts, white; and white toe-nails on the right foot.—*Stephen Clogg; Looe, Cornwall, January 15, 1875.*

**Little Bustard in Norfolk.**—The occurrence of a specimen of the little bustard (*Otis tetrax*) in the parish of Tilney All Saints, in West Norfolk, in December last, as recorded in the 'Zoologist' for February last (S. S. 4340), is somewhat remarkable, inasmuch as it proves another instance of the mysterious attraction which certain localities seem to possess for certain of the rarer stragglers of the feathered race to our shores. In the very next parish to Tilney—*viz.* Terrington St. Clements—my late father-in-law, the vicar of that parish, the Rev. T. T. Upwood (who was an excellent field-ornithologist), shot at various times no less than three specimens of the little bustard, two of which are still in the collection which he left at his seat, Lovell's Hall, in the parish of Terrington, and the third is in my own collection here. These occurrences, however (I must hasten to add) took place between thirty and forty years ago, when the neighbourhood of the Wash presented a much wilder aspect than it does now, and when ornithological prizes were continually met with, the very narration of which makes the collector's mouth water in these degenerate days. Thus Mr. Upwood used to relate how on one occasion, when partridge shooting in the "Marsh" (as the very highly-cultivated corn-lands bordering on the Wash are termed), he was startled by a flock of seven great bustards (*Otis tarda*), getting up close before him, the strangeness of which sight, the mighty whirr of their great wings, and the flurry consequent thereon, so completely overcame him that—though he was an excellent shot, and seldom missed his aim—both his barrels were fired without effect. On another occasion he obtained a specimen of the blackwinged stilt (*Himantopus melanopterus*), and at various times no less than three specimens of the avocet (*Recurvirostra Avocetta*), of which again two are at Lovell's Hall, and one in my collection. Other specimens which we should now regard as treasures were but ordinary occurrences in those days, and many were the grebes of various species, the godwits, the divers, the rarer kinds of ducks and gulls, which fell before his gun and rewarded his exertions. Fine specimens of the merganser, goosander and smew (*Mergus Serrator*, *M. Merganser* and *M. albellus*) were frequently occurring; but each of these I have obtained from the same locality within the last twenty years. Bitterns (*Botaurus stellaris* and *A. minutus*), the spoonbill

(*Platalea leucorodia*), terns of various species, and the storm petrel were in turn met with and captured. These are samples, which occur to my recollection at this moment; but there were many other ornithological prizes, both of land and water birds, obtained from time to time in this gifted spot, chiefly, however, amongst the waders and swimmers; in short, I may truly say that few localities in England could boast of being so well supplied with visitants, either regular or occasional, from the numerous branches of the highly respected families of Struthionidæ, Charadriidæ, Ardeidæ, Scolopacidæ, Rallidæ, Anatidæ, Colymbidæ, Alcadæ and Laridæ. With regard to the latter part of Mr. Gunn's communication, I may take the opportunity of giving my experience, as having skinned both the great and little bustard. I never saw the slightest shade of rose-colour in the base of the feathers of either species, though I certainly think I should have noticed it had any such tint been observable. The flesh of the little bustard I consider to be very like that of the pheasant,—under which name, indeed, I have on more than one occasion bought it, for tenpence, in the market at Lisbon,—and is far more delicate and palatable than that of its larger congener.—*Alfred Charles Smith; Yatesbury Rectory, Calne, February 19, 1875.*

**Blackthroated Diver in Norfolk.**—I received, on the 22nd of December, a female specimen of the blackthroated diver that had just been killed on Horsey Mere, near Great Yarmouth. The plumage appeared in a state of change, showing all the white square spots on its back and upper wing-coverts; it also showed several patches of black feathers on its throat and neck.—*T. E. Gunn.*

**Albino and other Variations of Plumage in Birds.**—As Mr. Forbes has drawn the attention of the readers of the 'Zoologist' to this subject (S. S. 4378), perhaps you will allow me to state what has come under my notice in reference to it. I have not many specimens of these accidental varieties, as I do not care very much about them myself; but as there may be some points interesting to Mr. Forbes and others who pay attention to them, I will give a short description of the few I have. All the varieties I possess show a tendency to albinism, and this appears to me much more general amongst birds than the opposite tendency to melanism; for, except now and then in a bullfinch which has eaten too much hemp-seed, this tendency seems by no means common. The so-called Sabine's snipe is, I know, by some considered only a melanism, but of this I am very sceptical. On the other hand, albino, partly albino, and pale varieties of nearly all our British birds may without much difficulty be found. This tendency to albinism seems to me more common in young than in old birds, although no doubt in some cases it lasts for years, and in others seems partly seasonal. This may have been the case with the first of the varieties I shall mention—a blackbird, male, throat and ear-coverts nearly white; rest of plumage

and soft parts as usual: this bird was seen about the same place for two or three winters; at length, in the middle of February, some one shot it and brought it to me: as it was always seen about the same place, and only in winter,—I never heard of its being seen in the summer, though I made inquiries,—it seems probable that this was only an abnormal seasonal change. Another blackbird I have is of a uniform buff or fawn-colour; this bird was killed in Guernsey; I did not see it in the flesh, so cannot tell about the eyes; the legs are paler than is usual; I did not ascertain the sex, but it is of a perfectly uniform colour all over, as in the male, though the bill and legs are more the colour of those of the female. On mentioning this bird to a friend, he showed me a very similar variety, which he said he had in the flesh, and had taken it to a birdstuffer to set up, who afterwards told him that on skinning the bird he found beneath the skin a quantity of black fluid, which looks as if the colouring matter was present, but for some reason was not properly secreted through the feathers. I have a nearly similar variety of the hedgesparrow, but there is slightly more difference of colour, as the parts which are dull bluish in ordinary cases can be distinguished, and the primary quills are white, slightly margined with fawn-colour or buff on the outer web: the secondaries are rather broadly margined with the same on both webs, and the shafts of all are white; bill quite pale; eyes not known. Another hedgesparrow much mottled on both the upper and under surface with white; wings as usual; tail, two outer feathers white on one side, on the other side the second feather only white; the white feathers all have white shafts: this bird was killed in October, and was apparently a young bird in moult. I have two house martins which are quite white, and the bills are also white; they are both young birds, killed—I was told by the person who shot them—a few days after they left the nest: I did not see these birds till some years after they had been set up, so can say no more about them, and the same remark applies to a quite white house sparrow, the bill and legs in this latter instance being also quite white. Another house sparrow, a male, is a sort of smoky gray and white; the shafts of the quill and tail feathers white—whiter than the feathers; bill pale. Amongst rooks the pied and partially white varieties seem generally to be young birds; though this is not always the case, for amongst a party of rooks that daily frequent my lawn there was for some years one with many perfectly white feathers amongst the wing-coverts and quills; apparently these same feathers when renewed after each moult came white again: whether this bird eventually assumed his proper plumage or came to grief I cannot say, but he has not shown his white feathers here for three or four years. Both the examples of pied rooks that I have are young birds: the first has a few white feathers on the head; many of the feathers at the base of the upper mandible are white; there are a few white feathers in the

wings, and the chin and throat are white; bill pale at the base, especially at the lower mandible, rest dark horn; legs black; outer and middle toe of one foot pied; claw of outer toe white; claw of the middle toe of the other foot also white. The other and still younger bird, killed on the 2nd of June, has also some of the feathers at the base of the upper mandible black and some white; forehead white, with a black patch in the centre; chin white; some of the wing-coverts white, some partly white and partly black; the greater number, however, are of their proper colour; of the quill-feathers, which are only partly grown out, four on one wing are nearly white, on the other the first quill is nearly all black, except a patch of white near the tip of the inner web; shaft black; the shafts of all the white feathers are white; the pen part of the quills, which were still soft and full of matter, were in the white feathers white, and in the black feathers dull lead, showing the colour of the matter contained in them: bill, upper mandible pale yellow at the base, darkish towards the tip, ridge of culmen whitish horn—lower mandible pale yellow at base, whitish horn towards the tip; legs black; outer toe of one foot black, all the others slightly pied, claws all white; on the other foot the toes are all more or less pied, the middle claw is black, the rest white; the irides in this bird were pale, nearly white. Had not these two rooks been killed I should have been curious to see whether they assumed their usual plumage after the first moult, and for this reason should certainly not have shot them myself—at all events, not till after at least three moults: not that I care about preserving these pied and albino varieties,—on the contrary, I do not like to see them about,—but because I have a strong notion that in many cases they assume their normal plumage after a time.—*Cecil Smith; Bishop's Lydeard, near Taunton.*

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**Greenland Shark off the Suffolk Coast.**—A very fine Greenland shark (*Squalus borealis*) is now exhibiting in this city: it was taken off Kessingland, Suffolk, on the 28th of February last: it is, I believe, a male, and measures twelve feet six inches in length and seven feet in girth. It is advertised as a "white shark."—*Thomas Southwell; March 12, 1875.*

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## Proceedings of Scientific Societies.

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### ZOOLOGICAL SOCIETY OF LONDON.

March 2, 1875.—OSBERT SALVIN, Esq., F.R.S., in the chair.

An extract was read from a letter addressed to the Secretary by Dr. W. Peters, pointing out that the *Sternothæus* figured by Dr. Gray, in the

Society's 'Proceedings' for 1873, to which neither specific name nor locality had been assigned, was *S. niger*, and that its habitat was the Cameroons, from which place Dr. Peters had received specimens.

Mr. Dresser read some notes on the *Falco labradorus* of Audubon, *Falco sacer* of Forster, and *Falco spadiceus* of the same author.

Mr. A. Boucard communicated a monographic list of the Coleoptera of the genus *Plusiotis* of North America, and gave descriptions of several new species.

A communication was read from Mr. E. P. Ramsay, giving descriptions of some rare eggs of Australian birds.

Mr. G. B. Sowerby, jun., communicated the descriptions of ten new species of shells from various localities.

Dr. A. Günther communicated, on behalf of Dr. T. Thorell, of Upsala, descriptions of a collection of spiders made by Dr. Vinson in New Caledonia, Madagascar and Reunion, amongst which were a few new species.

A communication was read from Mr. E. L. Layard, H.B.C. administering the Government of Fiji, giving descriptions of some supposed new species of birds from the Fiji Islands.

Mr. A. H. Garrod read a paper containing the description of the lower larynx in some of the rarer species of Anatidæ. To this was added an account of the tracheal arrangement in *Platalea ajaja*, which differs much from that of the common spoonbill. Reference was also made to the manner of development of the tracheal loop in those of the Cracidæ which have recently died in the Society's Gardens.

March 16, 1875.—Dr. A. GUNTHER, F.R.S., V.-P., in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of February, 1875, and called particular attention to a Peguan tree-shrew (*Tupaia Peguana*), presented by the Hon. Ashley Eden, Chief Commissioner, Rangoon, British Burmah; a Blanford's squirrel (*Sciurus Blanfordi*), presented by Mrs. Dunn; and four Quica opossums (*Didelphys Quica*), and a yellow-lored amazon (*Chrysolotis xantholora*), acquired by purchase.

Mr. Howard Saunders exhibited a specimen of a gull obtained by Mr. Gervase Mathew, R.N., at Magdalena Bay, Lower California, closely resembling *Larus fuscus*, a species hitherto unrecorded from the New World.

A letter was read, addressed to the Secretary by Captain John Biddulph, containing remarks on the wild sheep met with during his recent journey to Yarkand.

A letter was read from the Rev. J. S. Whitmee, of Samoa, South Pacific, giving particulars as to the occurrence of the palolo (*Palolo viridis*) on the shores of that island in 1874.

Prof. W. H. Flower read a memoir on the anatomy and affinities of the musk deer (*Moschus moschiferus*). After an exhaustive account of the structure of this animal, based on the examination of a specimen that had recently died in the Society's Gardens, Prof. Flower came to the conclusion that it was most nearly related to the Cervidæ, and might be placed within the limits of that family.

A communication was read from the Rev. O. P. Cambridge, in which he gave descriptions of twenty-four new species of spiders of the genus *Erigone*, from France, Corsica, Sicily, Spain, Morocco and Algiers.

Dr. A. Günther read a second report on the collections of Indian reptiles recently obtained by the British Museum, and described several species as new to Science.

A paper was read by Messrs. Selater and Salvin, containing an account of the birds collected by Mr. A. Goering on the Sierra Nevada of Merida, and at San Cristoval, in Venezuela in 1874.

A communication was read from M. L. Taczanowski, containing the description of a new species of grouse from the mountains of Georgia, allied to the black grouse, which was proposed to be called *Lyrurus Mokosiewiczzi*.

Mr. A. G. Butler read descriptions of a large number of new species of Sphingidæ.

Sir Victor Brooke gave a notice of a deer allied to the fallow-deer, from Mesopotamia, of which he had lately received specimens from Mr. P. J. Robertson, H.B.M. Vice-Consul at Bussorah. For this new form, which is found in the jungles along the Valley of the Euphrates, Sir V. Brooke proposed the name *Cervus Mesopotamicus*.—*P. L. Selater*.

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#### ENTOMOLOGICAL SOCIETY OF LONDON.

February 1, 1875.—Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

#### *Donations to the Library.*

The following donations were announced, and thanks voted to the donors:—‘*Thesaurus Entomologicus Oxoniensis*,’ part ii.; presented by the Author, J. O. Westwood, Esq., M.A., F.L.S., &c. ‘*Pinacographia*,’ illustrations of more than 1000 species of North-West European Ichneumonidæ sensu Linnæano; by the Author, M. S. C. Snellen van Vollenhoven. ‘*Annales de la Société Linnéenne de Lyon*,’ année 1873; by the Society. ‘*Bulletin de la Société Impériale des Naturalistes de Moscou*,’ 1874, no. 2; by the Society. ‘*L’Abeille*,’ 1874, livr. 24; 1875, livr. 1; by the Editor. ‘*Exotic Butterflies*,’ part 93; by the Author, W. C. Hewitson, Esq. ‘*The Entomologist’s Monthly Magazine*’ for February; by the Editors. ‘*Newman’s*

Entomologist' and 'The Zoologist' for February; by the Editor. 'The Canadian Entomologist,' vi., no. 11; by the Editor.

*Election of Members.*

Clermont Livingstone, Esq., of Tudor Lodge, Snaresbrook, was balloted for and elected an Ordinary Member; and M. Auguste Sallé, of Paris, a Foreign Member.

*Exhibitions, &c.*

Mr. S. Stevens exhibited a dark variety of *Noctua glareosa*, *Gn.*, and Mr. Champion exhibited specimens of *Amara continua*, *Thoms.*, taken at Caterham and Mickleham.

Mr. Druce exhibited a selection from a fine collection of Diurnal Lepidoptera from Santarem, Brazil.

The President exhibited a nest of *Polistes gallicus*, taken on the Esplanade at Corfu, of which the cells were partly constructed with coloured paper taken from some play-bills posted in the vicinity, as alluded to in his Anniversary Address, delivered at the last meeting.

Mr. F. Smith remarked that specimens of *Colletes cunicularia*, *Linn.* (*C. hirta*, *St. Fargeau*) had been captured hitherto only in the Isle of Wight and near Liverpool, and that a number of specimens having been forwarded to him from the latter place, he had transported them to a suitable locality at Shirley Common in 1873, and that he had reason to believe that he had succeeded in establishing a colony there, as the insect had been taken near the same spot in 1874 by Mr. d'Arcy Power.

*Papers read, &c.*

A paper was communicated by Mr. A. G. Butler on the Rhopalocera of Australia.

A paper was read by Mr. W. Arnold Lewis, entitled "On Entomological Nomenclature and the Rule of Priority.

The President nominated Messrs. Dunning, Pascoe and Jenner Weir as Vice-Presidents for the ensuing year.

February 15, 1875.—Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

*Donations to the Library.*

The following donations were announced, and thanks voted to the donors:—'Proceedings of the Royal Society,' no. 157; presented by the Society. 'L'Abeille,' tome xi., livr. 2; by the Editor.

*Election of Member.*

Frederick Henry Ward, Esq., of Springfield, Tooting, was balloted for and elected an Ordinary Member.

*Exhibitions, &c.*

Mr. Phipson exhibited a singular variety of *Strenia clathrata* from Basingstoke, the wings being nearly unicolorous (fuscous), with a few pale spots.

Mr. F. Smith exhibited an additional collection of Hymenoptera sent from Calcutta by Mr. Rothney. It consisted of 1573 specimens of Fossorial Hymenoptera and Apidæ, all in beautiful condition. There were probably not more than twenty-five undescribed species; but from twenty to thirty species, which were hitherto represented in the British Museum by a single sex, were here most fully represented.

Mr. Verrall exhibited a number of living fleas taken two days previously from inside the ears of a rabbit near Lewes. They were gregarious in this situation, and in such a position that the animal was unable to dislodge them by scratching. He alluded to a communication made to him by Mr. M'Lachlan regarding a species from Ceylon which was gregariously collected in a very limited space on the neck of a fowl, and which had been exhibited at a recent meeting of the Royal Microscopical Society. They were fixed to the skin of the fowl by the proboscis, so that only the tails were visible outwards. Mr. Cole said he had found fleas on a hedgehog; and Mr. W. A. Lewis had obtained a species on a marmot in Switzerland.

Mr. Dunning called attention to the following extract from a recent French paper:—

*Colouring Matter from the Cockchaffer.*—The 'Bulletin des Sciences et Arts' of Poligny (Jura) gives particulars of a curious discovery by Dr. Auguste Chevreuse. He had found that in decapitating living cockchaffers an hour after they have been feeding, they yield four or five drops of a colouring substance, which varies with the nature of the leaves on which they have been feeding, and he has already obtained fourteen different shades. M. Nichlès, Professor of Chemistry, M. Préclaire, Professor of Drawing, and M. Chatelain, architect, have found that this substance may be employed either in mono-tinted drawings—like Indian ink, sepia, &c.—or mixed with water colours, and that it does not change on exposure to the light. The colouring substance may be collected on glass or in shells, in which it may be left to dry, and when required for use it is sufficient to dissolve it in water. When applied in a thick coat it presents the effect of varnish. Two or three cockchaffers suffice for a small water-colour drawing.

The Rev. R. P. Murray stated that Mr. Edwards, of Virginia, was desirous of obtaining specimens of the pupæ of *Pieris Napi*, and that he would be happy to receive them for him from any entomologist who might be able to obtain them.—*F. G.*

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*Critical Notices (accompanied by the passages criticised) of a work intituled "A Catalogue of the Birds of Northumberland and Durham, by John Hancock."* By HENRY DOUBLEDAY, Esq.

[By the kind courtesy of the author, I have received a copy of this "Catalogue," and, almost simultaneously, some critical notes on its contents from the pen of my friend Mr. Doubleday, written, at my request, expressly for the 'Zoologist;' but my readers will please to understand that these notes, being confined to supposed errors in the work, will not supersede the necessity of a notice from my own pen in the usual review form, and inviting attention to the merits as well as the demerits of Mr. Hancock's work: such a review is in course of preparation for the June number of the 'Zoologist.'—*Edward Newman.*]

*Adult Plumage of Birds of Prey.*—"Not only do all the noble or true falcons acquire their adult plumage on the first moult, but many of the ignobles do so likewise, as the honey buzzard, the goshawk, the sparrowhawk and the harriers."—*Hancock*, p. 10.

I think this statement is not correct with regard to one or two of the species mentioned. Temminck distinctly states that the young male hen-harriers do not acquire their adult plumage until after the age of two years, and I think he is correct. The male sparrowhawk certainly does not acquire the fully adult plumage till it is three or four years old; but owing to the cruel persecution to which this species is subjected, really adult specimens are rarely met with. The one figured by Mr. Hancock I believe to be in the adult plumage of the male—the transverse bars gradually disappearing with age. Some years ago I shot a similar individual at Harlow: the upper part of the head was nearly black; the back deep lead-colour; the whole of the breast, sides and cheeks clear rufous, and the rest of the under parts yellowish white; the irides brilliant orange-colour: it had every appearance of being a very old bird.

*Hooded Crow.*—"In the spring of 1850 I had an opportunity of observing the habits of these birds in the neighbourhood of Elgin; both birds are there plentiful, and they are about equally abundant, and breed indiscriminately. The black and the gray form just as frequently paired together as two of the black or two of the gray; and some of the young from the same nest were black like the

carrion crow, and others gray like the hooded crow; while some partook of the characters of both parents, the gray colour being reduced in quantity and irregularly disposed. One nest, which I met with at Elgin, had three in the brood entirely black, the other two black and gray. In that neighbourhood the mixed varieties are quite as common as the pure forms: some are almost full black, with only a slight admixture of gray on the back or shoulders; others are more or less gray below and entirely black above; indeed no two seem to be exactly alike. Of two examples that I shot, one might have passed for a carrion crow, it was so uniformly black, there being only a very little gray on the under parts of the body; the other had a considerable patch of gray on the chest, but it graduated on all sides into black. In this case, as in many others, the central parts of the feathers were black, the margins gray; and towards the boundaries of the patch the central black portion increased, and thus the gray became blended and lost definition. The dark specimen proved on dissection to be a female, the gray one to be a male. The female was evidently a breeding bird. The reproductive organs in both cases were in a perfectly healthy and fully developed state, and in no way resembled those of hybrids. In the district where this intermingling of the two forms occurs, the inhabitants look upon them as mere varieties of the hooded crow. Mr. Charles St. John, in his interesting work on 'Natural History and Sport in Mora,' says, 'Though the carrion crow is not supposed to be an inhabitant of this part of the country (speaking of the neighbourhood of Elgin), it is impossible to decide upon the line which divides the two birds, the black carrion and the hooded crow. No doubt the hooded crow is the commonest species here, but I have taken some trouble in examining these birds, and have killed crows in every shade of plumage, from pure black to the perfectly marked hooded crow, and this without reference to age or sex.' This author then goes on to say that 'the hooded crow is the crow of that country,' and evidently looks upon the black individuals as mere varieties. The same indiscriminate interbreeding of these two forms takes place in Aberdeenshire. The late Mr. J. Hepburn kindly sent to me the 'Notes of his Observations' on the subject, made a few miles north of Aberdeen, on the estate of his relative, Sir James D. K. Elphinstone, with liberty to make what use of them I pleased. Mr. Hepburn says, 'Every one acquainted with those parts of Scotland

where the carrion crow and the hooded crow are to be found in about equal numbers, must often have observed in the fields, during the early spring, individuals of the one kind associated with those of the other. In fact, when at that time you see a pair of crows, it is just as common to find that one is gray and the other black, as that both are of the same colour. The gamekeepers and persons of that description have no doubt whatever as to both the black and the gray "hoodies," as they are there called, being of the same species.' This gentleman examined twelve nests, and found that the parents of five of them were, the one black, the other gray; that of four, both parents were gray; and that of three, both parents were black. The broods of the black and gray parents were found, some to resemble one parent, some the other; and in one instance, where the parents were both hooded crows, one of the young was of a pure black, and all the rest were, like the parents, gray. Mr. Selby, in his address to the Berwickshire Naturalists' Club, in September, 1834, after mentioning that a hooded crow had, in the previous spring, paired with a carrion crow at Fowberry, goes on to state that examples of a similar nature 'have also been known to occur in Dumfriesshire by our distinguished colleague, Sir William Jardine.' And Temminck remarks that in the northern counties of Europe, where the *C. corone* is rare, a mixed breed is sometimes produced between it and the *C. cornix*. In Forfarshire, likewise, these two birds have been known to breed together. Indeed, it would appear that whenever these so-called species occur together in spring they freely pair. Baron De Selys-Longchamps, in his 'Notes on various Birds observed in the Italian Museums in 1866,' recently published in the 'Ibis,' states that Salvadori 'made me remark that *Corvus cornix*, which breeds on the coast of Liguria, seems to be derived from *C. corone*. Specimens are often black, with gray on the breast only; others have gray on the back, but the upper and lower tail-coverts are black. In Sardinia, on the contrary, the *C. cornix* resembles the light gray of Northern Europe, which winters in Belgium.' Specimens showing this intermixture seem not to be uncommonly found scattered about. Degland and Gerbe state that varieties of the hooded crow are sometimes nearly black. I have in my possession an individual all black, with the exception of a gray band across the breast. It was killed near Richmond, Yorkshire. The fact of this extensive interbreeding of the carrion and hooded crow is very interesting, and is assuredly contrary to

analogy. Hybridism is not uncommon in the animal kingdom as an exceptional occurrence; but I know of no other instance of such a constant unhesitating union of two so-called species as is here exhibited. Whenever these two forms associate together in spring they seem habitually to pair, showing no special preference for partners of their own colour. And it is impossible, with such information as we have before us, not to question the specific value of these two reputedly distinct forms: surely they must be mere races of the same species. The mongrels seem to breed as freely as their parents, and their reproductive organs exhibit no deterioration. Is this a case, then, where a physiological difficulty to Darwinism is surmounted? or is it a mere case of the intermingling of races or varieties, the progeny of which mixture reverts to the one form or the other of the parents? The black individual mentioned by Mr. Hepburn in the brood of two gray birds or hooded crows would appear to point to such being the fact. The only character distinguishing the hooded from the carrion crow is the gray colour of the back and belly of the former; in form, size and proportions they perfectly agree; the habits are very similar, and the nest and eggs are undistinguishable. In fact, it would seem that the hooded crow is a northern, the carrion crow a southern race of one and the same species. And that at the boundary line, when the two races meet, they pair freely together and breed without the least reluctance. The northern form migrates in winter southwards, and considerably overlaps the boundary line, and flits again in spring, a few individuals occasionally remaining and pairing with their southern kindred, as, for instance, the Scarborough example mentioned by Yarrell. A solitary instance of the same kind in Northumberland came to my knowledge some years ago. There is nothing extraordinary in this; for many species of birds of partially migratory habits do the same; that is, while some individuals remain in the country to breed, others learn to do so in their northern haunts. The woodcock is a notable example of this fact; the crossbill, shorteared owl, siskin, lark, golden-crested wren, ruff, and many others do so likewise."—*Hancock*, p. 33.

In my opinion the hooded and carrion crows are distinct species, as their notes and habits are different. Mr. Selby says of the former, "Their note is harsh, rather shriller than that of the carrion crow, and easily distinguished from it." I can confirm the truth

of this statement. In this neighbourhood the carrion crows remain in pairs throughout the year. The young birds sometimes remain with their parents the greater part of the autumn, but they separate early in the year, and appear to pair for life. The hooded crows associate in considerable numbers in winter, and small flocks of from fifteen to twenty are occasionally seen here frequenting the open common. I strongly suspect that the so-called carrion crows which are found in Scotland paired with the hooded crows are in reality black varieties of this species and not carrion crows; and the fact of one young black crow being found in the nest of a pair of hooded crows tends to confirm me in my opinion.

*Common Crossbill.*—"Some of the Scotch-bred specimens" (of the common crossbill) "are quite as large as the so-called parrot crossbill from Sweden and Norway; and in size the two forms imperceptibly graduate into each other: the same is the case with their eggs. Indeed I can find no character, either in the bird, nest, or egg, to distinguish the one from the other."—*Hancock*, p. 50.

Having had the opportunity of examining individuals of the parrot crossbill in the flesh, which were killed here some years ago, I unhesitatingly say it is a good species, and very distinct from the common crossbill. The bird itself is considerably larger, but the head is very much larger in proportion to the size of the bird than it is in the common species, and the bill is very different, being much deeper and more arched, and having the ends of the mandibles blunt, and not drawn to a fine point as in the common crossbill. The claws are also shorter and stronger than they are in the common species. This distinction is pointed out by Prince C. L. Bonaparte, who thus briefly characterizes the two species:—

"*Loxia pityopsittacus*. Maxima: rostro validissimo; uncis brevibus."

"*Loxia curvirostra*. Media: rostro minus valido; uncis productis."

In reference to the plumage of these birds, Mr. Hancock says, "On their first moult both sexes attain their *adult plumage*, which in the male is red and in the female green. The male afterwards gradually becomes green like the female, but somewhat brighter, and in parts inclined to a golden hue, particularly on the rump: this is easily proved in cage-birds." Supposing Mr. Hancock's

statement to be correct the plumage of the adult males is yellowish green, and not red, which he says is the livery of the young males after their first moult. When M. Temminck published his 'Manual,' he was of the same opinion, but further observations convinced him of his error, which he corrected in his Supplement. Inferences drawn from the changes of birds kept in cages are of no value whatever.

Many years ago I had the opportunity of examining a great number of crossbills. Large flocks of these birds visited this neighbourhood in June, and remained with us about a year, although their numbers were much diminished by the following spring. A large proportion of these birds were young ones in their nest-feathers; when they moulted in the autumn the females assumed the ordinary green plumage, which they retain during the rest of their lives. The young males after their moult became of a reddish buff colour, which appeared to change in the spring to red, brighter in some individuals than in others. Most of the old males at the time of their arrival here were yellowish green, mottled with dull red in some individuals: after the autumnal moult these old males became of a brilliant red. I shot one, apparently a very old bird, in which about half the feathers were red and the others greenish yellow; but the red feathers were all new ones, and it was evident that this bird was changing from yellow to red: it is still in the possession of a friend.

I admit that there is some little mystery about the changes of plumage in the male crossbills; but I believe that the livery of the males is brilliant red after the autumnal moult, and that this colour is retained till the following spring, when it gradually changes to a greenish yellow, the red plumage being again assumed after the next autumnal moult. These changes are analogous to those of some of the ducks, the males of which assume the plumage of the females in the spring.

*Common Linnet* (*Cannabina linota*, *Gmelin*).—"A common resident. This species has the breast sometimes red, sometimes gray, and consequently a few years ago individuals so differing were described as two species, and named respectively the brown and gray linnet. When the brown linnet is kept in confinement it loses the red on the breast on the first moult, and never afterwards regains it, but continues in the plumage of the gray linnet. The fact is that the males, from shedding the nest-feathers, get a red

breast, which they retain only the first season; they then assume the garb of the female, which is retained for the rest of their lives, as in the case of the crossbill. This does not seem to be generally understood by ornithologists, though the bird-fancier is quite familiar with the fact that the males never regain the red on the breast after moulting. It is stated by Yarrell that the males assume the red breast in the breeding season. This is not quite correct, for just as many are found breeding without the red breast as with it."—*Hancock*, p. 55.

Mr. Hancock is certainly in error with regard to the changes of plumage in this bird. He has drawn his conclusions from observations made upon individuals kept in confinement, which prove nothing, as it is well known that many birds never regain their nuptial plumage in confinement after it is lost at the first autumnal moult.

When the young male linnets shed their nest-feathers, the new ones on each side of the breast are chestnut-colour, fringed with gray: in the spring this fringe falls off and exposes the chestnut-colour, which, though generally rather brighter than it was in the autumn, seldom changes to the brilliant red which characterizes the adult birds. The second spring the males assume the red breast, which becomes brighter and brighter for three or four years; after which there is no further change, the bird being then fully adult. In this stage of its existence the crown of the head, nape and sides of the neck are pure bluish gray; throat and under part of the neck grayish white, with a few dark streaks; back, scapulars and wing-coverts uniform bright chestnut-brown; forehead and sides of the breast brilliant carmine-red. In younger individuals, the chestnut colour on the back is rather darker, and the edges of the feathers pale, giving it a streaked appearance.

For four or five successive years a pair of linnets built their nest in a laurel hedge in my garden. The male bird was lame, having, apparently, had one leg broken. I was therefore certain that it was the same bird which came year after year to the garden. The first year that I saw this bird it had no red on the breast; the second spring the crimson colour appeared, but it was not till the fourth year that it attained the fully adult plumage. Having never been disturbed, this bird was so tame that it would sit on the hedge and sing when I was within a few feet of it.

The redpolls undergo the same changes of plumage as the linnet, and the males annually assume the red breast in the spring after the second moult. I once saw an apparently very old bird, with the whole under parts and the rump of the most brilliant carmine, and I shot an equally fine specimen of the mealy redpoll, but the breast and rump were fine rose-colour, instead of carmine.

Mr. Hancock thinks the three redpolls are only "races" of one species. I do not clearly understand what modern naturalists mean by "races," unless it is local varieties. The three redpolls which have been found in Britain possess constant characters by which they can be readily distinguished: they never intermix in the breeding season, and in my opinion are good species. The distinctive characters of the four species known are clearly pointed out by the late Prince Charles Lucien Bonaparte:—

1. "*Acanthis rufescens*, Vieill. [Our lesser redpoll.]

Inhabits Europe, especially the western parts. A regular migrant.

Small ( $4\frac{1}{2}$  inches long). Rump more or less reddish; tail short (scarcely two inches long). The male in the breeding season has the rump [and breast] carmine. The female, young and male in the autumn have the rump reddish, streaked with fuscous.

2. "*Acanthis linaria*, Linn. = *borealis*, Vieill., not of Temm. [Our mealy redpoll.]

Inhabits North America and Europe. An irregular migrant.

Middle-sized ( $4\frac{3}{4}$  inches long). Bill small, covered beyond the middle, with short feathers; throat-spot small; space between the bill and the eye fuscous; rump white; tail rather short ( $2\frac{1}{4}$  inches long). Male with the rump [and breast] in the spring rose-coloured; female and young with the rump streaked with brown.

3. "*Acanthis Holbolli*, Brehm. Inhabits the North and West of Europe.

Large ( $5\frac{1}{4}$  inches long). Bill bright yellow, very large, very robust and elongated (three-fourths of an inch long), only covered at the base with short feathers; the large spot on the throat and the space between the bill and the eye black; forehead red; breast and rump rose-coloured.

4. "*Acanthis canescens*, Gould = *borealis*, Temm. 1835, not of Vieill.

Inhabits Greenland.

Large ( $5\frac{1}{2}$  inches long). Claws long; rump white, never striated; tail long (three inches and one-sixth). The male in the breeding season has the rump tinged with rose-colour. The females, young and males in the autumn have the rump white."

*Our Wagtails.*—Mr. Hancock says of our pied wagtail (*Motacilla Yarrellii*, Gould), "This is a very doubtful species, as varieties

occur which seem to unite it with *M. alba*, of which it is probably a mere race.”—*Hancock*, p. 62.

The so-called varieties are probably only immature birds: really adult birds of *M. Yarrellii* have the head, back and rump intense black in the summer and winter, while *M. alba* has the head only black, and the back and rump pure light gray. Mr. Hancock says of our yellow wagtail that it probably should be considered a “race” of the grayheaded wagtail (p. 61). The two birds exhibit constant differences, which are very striking when they are adult. They have never, I believe, been known to breed together, and if they are not distinct species, I do not know what constitutes a species.

*Red Grouse* (*Lagopus scoticus*, *Brisson*).—“This fine resident species is found wherever heather and ling abound. It is generally considered to be peculiar to the British Islands. It comes, however, so close to *L. Saliceti* or *albus*, that the two so-called species can scarcely, in the summer dress, be distinguished; in size they agree, and in the colour and markings of the plumage they are the same.”—*Hancock*, p. 88.

I differ entirely from Mr. Hancock in his views regarding these birds. I believe they are distinct species. Temminck states that *L. scoticus* has sixteen feathers in the tail and *L. Saliceti* eighteen: I have no means at the present time of ascertaining the correctness of this statement. The beak of *L. Saliceti* is certainly much stronger than that of *L. scoticus*. The lower part of the breast, the belly and quill-feathers of the wings are pure white *at all seasons of the year*; yet Mr. Hancock states that the two species can scarcely be distinguished in their summer plumage. The quill-feathers of *L. scoticus* are blackish brown. The one mentioned by Mr. Hancock as having them white was evidently merely an accidental variety.

The ptarmigan undergoes the same seasonal changes of plumage in Scotland as it does in the North of Europe, and it is very remarkable that the red grouse should not undergo the same changes if it is a mere variety of the willow grouse, which invariably becomes pure white in the winter.

M. Temminck says, in the second edition of his ‘Manual’:—“I made a great mistake in my first edition respecting that very distinct species the *Tetrao scoticus* of Latham, which I regarded as my *Tetrao Saliceti* in summer plumage, a species which is subject

to a double moult, and of which the plumage in winter is pure white; but the *T. scoticus* only moults once in the year, and the plumage is at all times of maroon-red. The summer livery of *T. Saliceti* approaches this colour, but it is easily distinguished from *L. scoticus* by the wings and all the lower parts of the body being constantly white. The tail is composed of eighteen feathers, and the laterals are always tipped with white."

HENRY DOUBLEDAY.

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### Notices of New Books.

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*Reprint of Boddaert's Table des Planches Enluminées d'Histoire Naturelle.* Edited by W. B. TEGETMEIER, F.Z.S. London: 'Field' Office, 346, Strand. 1874.

IT is impossible to do better for a work of which, like most other ornithologists, I am profoundly ignorant, than to extract the Editor's Preface, so far as it elucidates the object he has in view.

"M. Boddaert's exceedingly rare work, of which only a very few copies were printed, was published at Utrecht in 1783. Its present value to zoologists is due to its applying, for the first time, to very many species, the presently received system of scientific nomenclature, and thus fixing, by reason of priority, the names of a considerable number of genera and species.

"Only two copies are known to exist in the United Kingdom, one in the Banksian Library and a second in private hands; but in consequence of its great value to systematic zoologists, several incomplete manuscript copies have been made for the use of scientific societies and private individuals."

This is all Mr. Tegetmeier has to say of the original edition, but he adds a recommendation by the Editor of the 'Ibis' of the reprint now before us, to the following effect:—"We have seen proofs of the reprint, which is a *verbatim* and *literatim* copy of the original, every word, line and page being reproduced in facsimile, even to the typographical errors of the old edition." Mr. Tegetmeier further adds this polite acknowledgment to the lady who made the transcript from which this edition is printed—"I have to express my obligations to Miss Rose Adams for her accurate transcript of the original for the press."

This graceful and doubtless just tribute to his lady amanuensis unfortunately rather detracts from than enhances the value of the

reprint, since it proclaims what Mr. Tegetmeier has certainly no desire to conceal, that this edition is printed, not from the original work, but from a manuscript copy of that original, written by Miss Rose Adams. I have no reason to doubt its accuracy of the copy, but old book-worms like myself will see at once that it is not exactly the same thing. I have often utilized manuscript copies, most obligingly made for me by ladies, of passages from books that have come before me in my editorial capacity, and on reading them "by copy," have always found them more or less deficient in exactness. I mention this by no means as implying the existence of inaccuracies in this reprint, but rather as inculcating the necessity of utilizing the original, and not a transcript, in cases like the present, in which minute accuracy has been so strongly insisted on as the great merit.

To me this accuracy is a matter of indifference: before twelve months, perhaps before six, have passed over our heads, some other nameless work of older date than Boddaert will doubtless be discovered, musty and worm-eaten, and the worthy Dutchman's names will become synonyms.

I am quite ready to admit the good intention, enterprise, industry,—aye, even the accuracy,—of Mr. Tegetmeier's labours; but I fail to see their utility, for supposing a dozen or even two dozen names may be changed in deference to Boddaert's authority, as is very possible, it will be a matter of regret, rather than rejoicing, and will cause infinite labour to future compilers and infinite confusion to future students. The "Law of Priority," as explained by the "British Association" and worked out by restless nomenclators, is essentially a law of change. The task of name-altering, once begun, can never be ended; it is a pouring of water into vessels that have no bottom; it is the ascending a tread-wheel that can revolve only on its own axis; it is the laborious manufacture of "Dissolving Views."

EDWARD NEWMAN.

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*Zoology.* By ALFRED NEWTON, M.A., F.R.S.

THIS appears to be one of a series of Manuals of Elementary Science, published by the Society for Promoting Christian Knowledge, and I cannot say that I at all admire Professor Newton's mode of teaching, as illustrated by this specimen. In the year

1835, in introducing one of my earliest lucubrations to the public, I ventured to submit what most of my fellow-labourers thought the crude and ill-considered opinion that "Introductory works on science should be written *for* those who know nothing of the subject on which they read, and *by* those who possess in themselves some practical knowledge of the subject on which they write." It will be observed by any one who opens Professor Newton's 'Zoology' that he and I are opposed on the first moiety of this proposition, since he appears to be unaware of the possible existence of ignorance in Zoology, and to write for our teachers as much as for ourselves: he soars above all our heads; at least it is so with me; for when I have read the whole, including the explanatory summary with which he concludes, and which I have cited below, I pause a moment to take breath, and then exclaim, "How wonderful! What a display of learning! but it cannot be intended for the likes of me."

"Should we wish to express more clearly how this common bond of life unites the whole animal world, we cannot do better than by adopting the form of a genealogical tree with the various branches, nearly as it has been drawn by Professor Allman [in his Address delivered to the Biological Section of the British Association at Bradford, 1873, p. 5].

"Starting from the Protozoa as the root, we are led on one side through the Rhizopods to the Hydra-like animals of the group Cœlenterata, and there that line soon comes to an end; but from the Infusores, which may be regarded as on a level with the Rhizopods, we pass to the lowest group of the Vermes, namely, the Helminthes, and thence to the Annelids, or highest. Here we find our tree sending forth three branches, two of which, the Echinodermata and Arthropoda, are connected with the stock by the Star-fishes and Crustaceans respectively, while the third, the Polyzoa, shoots upwards to the Tunicates, the highest group of the Molluscoidea. Thence again arise two branches, one not extending very far, and ending in the Mollusca, while the other points to the Lancelet (Branchiostoma), the lowest member of the great group Vertebrata. Arrived there the general sequence, as it has already been given in this book, is plain, and the series of creatures culminates in Man."—P. 127.

I have never seen any reason to doubt, *first*, that the Vertebrata, or more properly "Endosteata," are the central group of the animal kingdom, the others being the Exosteates (or Articulates), the Anosteates (or Mollusks) and the Actiniates (or Radiates); *secondly*, that the sucklers are the central group of Endosteates, the other

groups being Birds, Reptiles and Fishes; the Sucklers are connected with Birds through the Bats, with Reptiles through pangolins and armadillos, and with Fishes through porpoises and whales. The pectoral sucklers (Primates) are central, and MAN is the centre of these—not a mere unit on the circumference of the system.

EDWARD NEWMAN.

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*Notes on the Natural History of South Africa.*

By R. B. and J. D. S. WOODWARD, of Natal.

(Continued from S. S. 4398.)

*Bustards.*—As yet we have only met with two species of bustards in Natal,—the paauw (*Otis Kori*) and the koran (*Otis afroides*),—but we believe there are others to be found here. The paauw, which literally means “peacock,” is a fine bird, nearly as large as a turkey; during the winter, or dry season, they are very plentiful in most of the up-country districts. We have particularly noticed them at Dronk Vley, an extensive marshy flat situated about eighty miles from the sea: this being a wild and uninhabited tract of country they are very little molested. It is a grand sight for the naturalist to see a number of these noble birds stalking about in this retired locality, in company with a great variety of cranes and storks and occasionally a pair of secretary birds. We fear that before long bustards will become scarce, as they are so tame that they are easily shot by the sportsman, unless they are more strictly protected by the game-laws. The flesh of the paauw is excellent eating, being fully equal, and very similar, to that of the domestic turkey. We have not discovered their breeding places, but have heard that they retire for this purpose to the Drahensburg, a high range of mountains bordering Natal. The colour of the upper parts of this bird is gray, the wings being mottled with white; the under parts are whitish; the head of the male bird is crested; the female similar in colour, but rather smaller. It feeds on locusts and different kinds of reptiles, and in its wild state does not seem to care for vegetable food.

The koran is not more than half the size of the former species, but is more generally distributed, being found on the coast as well

as up-country. It resembles the paauw in its habits, but is not so gregarious, generally going in pairs. It lays two yellowish eggs, spotted with brown, in a hollow amongst the grass: the young, like chickens, leave the nest as soon as they are hatched. On the 19th of December, 1871, we obtained two unfledged young ones, caught in this neighbourhood, and reared them on porridge and mince meat: one of them throve well for some time, but having an unfortunate propensity for swallowing anything which came in its way, died at last from the effects of eating a piece of glass. We have not had another opportunity since of raising them: there is no reason why they should not become in time a valuable addition to our domestic poultry. The upper parts of the koran are of a dark brown, variegated with white: underneath, the male bird is jet-black, which distinguishes it from the female, whose breast is spotted.

*Baboons.*—The chacma, or pigfaced baboon (*Cynocephalus porcarius*), is the only species found in South Africa; it inhabits the rocky parts of Natal: the “gates,” or high precipices rising on either side of the Ifafa river, are favourite haunts of these animals: here they live in the holes and crevices, feeding upon roots and different kinds of berries which they obtain in the woods below. When these grow scarce they make raids to the nearest “mealie garden,” or patch of maize, planted by the natives. They go about these excursions in a clever and systematic way: on arriving at their destination only part of the troop will enter the field, the older and more experienced baboons stationing themselves on points of observation around, where, on the first approach of danger, they raise the alarm. Not content with appeasing their appetites on the spot, we have actually seen them carry off bundles of mealie cobs under their arms to their retreats, and their route may be traced by the skins and pieces of cob scattered along the way: they steal pumpkins in the same way. In winter, after the corn has been reaped, they have been known to enter the “crate,” or barn, and abstract the grain.

Baboons grow to the size of a large mastiff, and if it were not for their timid disposition they would be very formidable brutes to meet with; but as it is a small Kafir boy, or even a fire, is sufficient protection for the crops. We often see a lot of them in the distance, but they are very wary and difficult to approach within gunshot unobserved. Their cry is a loud bark, which when echoed by the

rocks can be plainly heard three or four miles off. It is said that baboons when wounded will retaliate by pelting stones on their assailants; but we have not found this to be the case. Any time that we have surprised them, they only evinced a desire to escape, climbing with wonderful agility the almost perpendicular cliffs, and on reaching the top scampering off on their four legs with the swiftness of a dog.

On the 23rd of January, 1873, we caught a fine baboon in a steel trap, by the leg, but some of our Kafirs working near hearing its cries, and influenced, we suppose, by feelings of revenge, beat the poor animal to death before we could arrive on the scene. This was a disappointment to us, as we should have found pleasure in studying its habits in captivity. We saw several tame baboons near Durban, belonging to a Mr. Thomson, a naturalist, collecting for an American society; they were caged, but seemed to bear their confinement well. One is kept in a yard behind the Pietermaritzburg barracks, where it is made a great pet of by the soldiers, who have taught it some amusing tricks.

*Monkeys.* — The green monkey (*Cercopithecus callitrichus*) abounds throughout the bush, where it sports and gambols in the trees like the squirrel does at home. It is a pretty little animal, of a greenish gray colour, and is about three feet in length, including the tail, which is about the same length as the body. We have had several of these monkeys at different times, but they always managed to make their escape after a few months, although they were perfectly tame when chained; once at liberty, the woods seemed to have too great an attraction for them. A neighbour of ours caught an old female monkey with a young one newly born; this she reared and showed great affection for in confinement. Monkeys have many enemies; during the day eagles, hawks and snakes prey upon them, and at night they are often disturbed by the leopard, who, stealing cautiously up the tree, grabs one before it is aware of the vicinity of so formidable an antagonist. A large buzzard was shot here in the act of eating a full-grown monkey which it had just killed. They are generally quiet after dark, but if frightened set up a loud chattering noise. These monkeys are even more destructive to the cane and corn crops than the baboon, being of a more pertinacious disposition, and of course much more numerous: the crops have to be closely guarded from their depredations from sunrise to sunset. A rather cruel

experiment was tried lately. A gentleman near here being pestered greatly by the monkeys devouring his sugar-cane, caught one and plastered it over with tar; he then sent it back to its comrades. This startling apparition produced a great commotion among the other monkeys: whether they eventually killed it we do not know, but it had the desired effect of preventing their return for some time. An old Dutchman told us of a curious method they have of capturing monkeys in the Free State: he said that being aware of their partiality for the seed of the pumpkin or gourd, the farmer makes a hole in one of these vegetables just large enough to admit of the creature's open palm being inserted: he places this trap in a convenient spot and remains hidden until the monkey has got its hand in the hole full of seeds, which, in its hurry to escape, it has not the sense to drop, and is therefore easily taken, not being strong enough to carry off the vegetable, some of which weigh as much as a hundred pounds.

The grivet (*Cercopithecus Petaurista*) is rather larger than the green monkey: it is called by the natives "isimango," and is greatly esteemed for its skin, the hair of which is of a soft silky texture, in colour green above and white beneath. The grivet is not often seen, keeping more to the denser parts of the bush, and subsisting chiefly on wild fruits; it is said not to care for Indian corn. It has been tamed, but monkeys are not always to be trusted; they are apt to act traitorously, particularly towards strangers. A lady of our acquaintance was attacked with great ferocity by a female monkey who was usually docile enough: on approaching to give it some food, it sprang upon her, tearing her in a dreadful manner with its sharp teeth, and it was no easy matter to drag off the furious animal. This monkey had a particular antipathy to females, Kafir and Coolie women being often molested. Rum sweetened with sugar was sometimes given to her, when she would become intoxicated, and appear quite ashamed, covering her face with her paws and crying. In a tame state monkeys will eat both cooked meat and eggs, as well as vegetables.

*Cane Rat* (*Bathyergus maritimus*).—This rodent resembles in shape an enormous rat, being about eighteen inches long when full grown. It is thickly covered with short grayish spines, which are so stiff that they have almost the appearance of quills. In the day-time it lies very close in the scrub and long grass, and is rarely seen unless hunted out with dogs; but as soon as the sun falls it

issues from its cover, and commits great havoc amongst the planter's crops, especially the sugar-cane, from which it derives its name. Many people are prejudiced against using the flesh of this animal as food, owing to its rat-like form, but if scalded and served up like a sucking-pig it would hardly be known from it. To show how loosely the spines are attached to the skin, it may be worth mentioning that the Kafirs pluck them before cooking, as they would a bird. The other day one of these creatures poisoned himself by eating a sweet potato containing strychnine, which we had set for wild pigs. It is said that poisoned animals always make for the nearest water: we found the cane-rat dead beside a stream a considerable distance from the spot where it had eaten the poison. This year, after very heavy rain, we discovered a number of these animals drowned in the holes made by ant-bears. It is sometimes called the "coast rat," not being found far from the sea. The cane rat is so prolific that it would soon overrun the country were it not kept in check by birds and animals of prey, as well as by the larger snakes. We used to set steel traps for them, but they generally contrived to make their escape minus a leg. The Kafirs have a more effectual way of taking them in spring nooses. In certain places where these rats cannot find sufficient shelter above ground, they are said to burrow and form excavations almost as extensive as those of the mole.

R. B. & J. D. S. WOODWARD.

(To be continued.)

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*The Dokos of South Africa: Explanatory Note.*

As might have been anticipated, my having associated the Dokos of Beke with the Sokos of Livingstone has led to numerous enquiries, as well as requests, that I would give further and more precise information respecting the former. In compliance, I offer the following, not by any means as satisfactory evidence, but as the best I am able to procure. In both instances these distinguished travellers appear to have derived their information from natives. Livingstone, however, is a step in advance, having seen and possessed a juvenile Soko. Both travellers seemed to place reliance in the details they obtained.

The Dokos are a race for a knowledge of whom we are indebted

to Dr. Beke, and this traveller relied for his information on hearsay evidence, and plainly tells the reader to use his own discretion as to believing the account. It should, however, be borne in mind that Herodotus, whose statements have been wonderfully verified, speaks of a similar race of pigmies. I only extract small portions of Dr. Beke's description. "The Dokos, both men and women, are no taller than boys nine or ten years of age. They never exceed that height. They go quite naked. Their principal food is ants, snakes and mice. They are very skilful in finding out ants and snakes. They are so fond of this food that even when [in slavery] they have become acquainted with better aliment, they are frequently punished for following their inclination of digging in search of ants and snakes as soon as they get out of sight of their masters. They tie the skins of snakes round their necks as ornaments. They also climb trees with great skill to fetch down the fruits, and in doing this, stretch their hands downwards and their legs upwards. They live in extensive forests of bamboo and other woods, which are so thick that the slave-hunter finds it difficult to follow them in these retreats. These hunters sometimes discover a great number of Dokos sitting on the trees, and then they use the artifice of showing them shining things, by which they are enticed to descend, when they are captured without difficulty. As soon as a Doko begins to cry he is killed, from the apprehension that this, as a sign of danger, will cause the others to take to their heels. The Dokos live mixed together, men and women unite and separate as they please. The mother suckles the child only so long as she is unable to find ants and snakes for its food. No rank or order exists amongst the Dokos. Nobody orders, nobody obeys, nobody defends the country, nobody cares for the welfare of the nation. They make no attempt to secure themselves, but by running away. They are as quick as monkeys. They are very sensible of the misery prepared for them by the slave-hunters, who so frequently encircle their forests and drive them from thence into the open plains like beasts. They put their heads to the ground, and stretching their legs upwards, cry in a pitiful manner, 'Yer, yer!'"

EDWARD NEWMAN.

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*Unpublished Letter of the Rev. Gilbert White.*

Selborne, April 3, 1875.

DEAR SIR,

In reading the original letters of Gilbert White to Pennant, which form so large a portion of the 'Natural History of Selborne,' I have met with a considerable number of passages which have not been intended for publication, and were omitted from the copy sent to the press. Thinking that this early intimation of a proposed zoological journal (the earliest that I am acquainted with) might be interesting to you and to some of your readers, I have transcribed it. It forms the first portion of the twenty-fifth letter in the book. I have found several passages which I shall publish in my forthcoming edition of Gilbert White's book; but I thought that this one would not be out of place in the most popular periodical devoted to a similar object.

I remain,

Yours very truly,

The Editor of the 'Zoologist.'

THOMAS BELL.

(Copy).

GILBERT WHITE TO PENNANT.

"Selborne, Sept. 1, 1769.

"DEAR SIR,

"In a former letter, of May 9th, you mention a thought of a periodical publication that shall receive the various pieces of Natural History that otherwise might perish. Not being conversant in such undertakings, I am little of a judge whether such a pamphlet would be likely to take: and am fearful that the very occasion of your magazine may be the cause of its not succeeding: for amidst the din and clamour of party rage, the still small voice of philosophy will, I fear, be little attended to. However, if you think such a publication expedient, you will, no doubt, get considerable assistance from your friends; and I shall be ready to advance my mite; but then I shall expect you to be very charitable in your allowances, and to grant that my mite, in one respect, is equal to larger contributions, as it is all my stock of knowledge."

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*Ornithological Notes from Devonshire, Cornwall, &c.*

By JOHN GATCOMBE, Esq.

(Continued from S. S. 4373.)

## FEBRUARY, 1875.

1st. Fieldfares still very numerous but exceedingly wild, and notwithstanding the present mildness of the weather yet remain in immense flocks close to the town, instead of retiring to the moors, as they generally do on the breaking up of the frost, appearing to have an instinctive knowledge of a second visitation of severe weather being near at hand.

3rd. Observed several blackheaded buntings near Plymouth, a species not at all common in this immediate neighbourhood. A very large flock of ducks was seen flying high, seawards, this morning.

13th. Examined a guillemot which had partly assumed its breeding plumage. Two beautiful shieldrakes were bought in the Devonport market, also a brent goose. In the stomachs of the shieldrakes I found nothing but fine sand.

15th. Herring gulls commencing their laughing notes, as in the breeding season. Razorbills very numerous, but I have as yet seen none assuming the summer dress.

20th. Golden plovers in the market with partially black breasts. Saw a redthroated diver and some guillemots, the latter in full breeding plumage.

23rd. Another immature redthroated diver, and I also remarked a variety of the redwing, which had a white patch on its rump, but was otherwise in the usual plumage. Some of the pied wagtails have already nearly completed their nuptial garb.

24th. The weather has again become extremely cold, and the fieldfares have certainly proved themselves weather-wise in remaining near the town. A young blackthroated diver was killed to-day. Mr. John Sclater, in his interesting "Notes from Castle Eden" (S. S. 4401) says that he had a young female redthroated diver exactly corresponding with Bewick's "lesser imber," but as Bewick's figure and description were evidently taken from an immature or winter specimen of the blackthroated diver, I think it probable that Mr. Sclater's bird might be of that species. The

upper plumage of the young blackthroated diver is never spotted, but wavy, closely resembling that of the young northern diver. However, the markings on the upper plumage of the very young redthroated diver do, I believe, sometimes take somewhat the form of stripes rather than spots, in which state it has been called the "striated" or "striped" diver.

26th. Chaffinches are in full spring song, but the fieldfares and others of the thrush family still keep close to the town.

### MARCH.

2nd. Wind E.N.E. Bitterly cold, with occasional snow storms; notwithstanding which sky larks are continually mounting in full song. During the high and cold winds I have observed the tree creepers seeking their food among the mosses and lichens covering the lee-sides of old stone walls acting just as they do on trees, every now and then flying to the bottom and working their way upwards. Redwings and sky larks have not been plentiful in our neighbourhood, considering the severe cold—indeed I have known them much more so in mild weather; but fieldfares have been by far more numerous, and tamer, than I can remember on any previous occasion, and I think such has been the case generally throughout the country.

3rd. A fine buzzard was brought to a Plymouth birdstuffer to-day.

7th. Saw a party of *Larus ridibundus* which had nearly assumed the dark head-dress.

9th. Lesser blackbacked gulls are now very numerous, completely taking the place of the greater. Within the last few years I have remarked that the greater blackbacked gull is a winter, and the lesser blackbacked a spring visitor to this part of the coast. Wild ducks of all kinds seem to have left our coast since the disappearance of the first severe weather in December; not a specimen is to be seen in the markets.

8th. Lapwings with partially black throats and a fine female heron killed, in which latter were eggs as large as hazel-nuts; very cold weather seems to tame them greatly.

13th. A very pretty buff variety of the sky lark was obtained to-day, the quill-feathers of which were almost white, and I remarked some gray wagtails which had assumed the black throat.

14th. Razorbills very plentiful on the coast, calling to each

other with loud croaks; but, strange to say, none of these had yet attained the black neck.

15th. Observed the first wheatear; also some cormorants in perfect breeding dress.

16th. Fieldfares still plentiful.

18th. Visited Kingsbridge, and called on Mr. Nicholls, jun., the bird-preserver, who showed me a fine shag killed six weeks previously, but in full breeding plumage. I was much interested in having the opportunity of seeing Knowle House, once the residence, and I believe the birthplace, of Colonel Montagu. It is still very like the vignette given in Yarrell's 'British Birds,' although I was informed that it had been greatly altered. I afterwards drove to Thurlstone, on the coast, about five miles from Kingsbridge, the Rector of which place, on my mentioning Knowle House, told me that he possessed a fine oil painting of the beautiful spaniels, representatives of a magnificent breed introduced by Colonel Montagu: he also pointed out a village by the sea, in which the great painter Turner used to lodge, for the purpose of studying and painting his waves. In the fields I observed a great many herring gulls in full breeding dress. Lesser blackbacked gulls are now also in summer plumage.

20th. Several siskins were seen and some obtained near Plymouth. A few redshanks in our market, which must have wintered with us.

22nd. Visited the cliffs of the river Yealm near Plymouth, and found many herring gulls assembled at their nesting-place; but I do not think they had yet commenced operations.

23rd. Heard a wheatear singing very prettily, although the weather was very cold in the shade. Observed another redthroated diver and a flock of twenty-four ducks, which I think were scoters, on the sea near the Mewstone, at the entrance of the river Yealm.

26th. Remarked some chiffchaffs on the coast, apparently only just arrived; the following day there was a very strong north wind. Longtailed tits are now to be seen in pairs.

29th. Visited the annual breeding-place of a pair of ravens near Bovisand, and found the female sitting: she seemed very reluctant to leave the nest, and when she did so went off in a fluttering manner, at the same time uttering a curious cry until joined by the male, when they both flew round and round, rising and falling in a menacing way until we quitted the place. I was rather surprised

to see how much the quill-feathers of the raven's wings curved upwards in flight. Stonechats very numerous on the coast.

30th. A gannet was brought in to-day by some fishermen.

JOHN GATCOMBE.

8, Lower Durnford Street, Stonehouse, Plymouth,  
April 10, 1875.

*Notes of a Cruise at the Mouths of the Thames and Blackwater Rivers.* By A. H. SMEE, Esq.

THE following notes may be interesting to your readers. The extracts were taken from the log of the cutter "Wave," a small yacht of ten tons, which has been cruising all the winter at the mouths of the Thames and Blackwater rivers.

DECEMBER, 1874.

4th. Blackwater River. A good many flocks of black geese about, much too wild to get near.

10th. Mersea Quarters, Blackwater. A small flock of pintail ducks seen. Brent geese plentiful, but very wild.

17th. Strong northerly winds; Mersea Quarters. A few divers about. Very few flocks of geese seen. No ducks came in at the evening flight.

18th. Sailed across the main to Burnham River. Scarcely a bird seen. Brought up at the lower part of Foulness Island. A large flock of godwits crossed the river, but out of range. No ducks at evening flight.

19th. Went on shore at Foulness Island. Large flocks of golden plover in the marshes. The curlews and godwits very wild. Strong wind blowing and freezing sharp.

20th. Sailed through Wakering Haven, at the mouth of Haven-gore Gut. Large flocks of dunlins and plovers. Shot a solitary brent goose near the West Shoebury buoy. Very dense fog and white frost at night.

21st. Canvey Island. Shot a duck, the only one seen, and a few dunlins. Weather still thick and frosty.

JANUARY, 1875.

1st. Wind S.E. Hadleigh Ray full of ice. One scaup shot, also a wigeon floating down on the ice. Had to nail boards on stem to prevent the ice cutting through the yacht.

2nd. Wind south; thawing. Canvey Island. The ducks and wigeons came in; flight very high.

3rd. Wind W.S.W. Canvey Island. The ice had all disappeared. Three wigeons and a duck shot, besides redstarts and dunlins.

4th. Wind S.W. Canvey Island. A bernicle goose seen in the river, but too far from the island to shoot. A flock of pintail ducks seen. A good many gray plovers and dunlins flying about.

5th. Wind N. A few ducks seen in the Lower Hope.

11th. Wind S.S.E. Three swans seen in Hadleigh Ray.

16th. Wind W.S.W. Canvey Island. Ducks flying very high.

20th. Wind W.S.W., strong. Passed a few ducks in the Jenkin Swatch at the back of the Nore.

23rd. Wind W.S.W. Queensborough Swale. Birds not so plentiful on the Kentish as on the Essex shore.

#### FEBRUARY.

10th. Wind E. A few ducks seen near Hole Haven, flying high.

11th. Wind S. Ducks and wigeons flying about Hadleigh Ray.

13th. Wind N.N.E. A large bunch of wigeons in Leigh Middle, also several divers. Shot a godwit out of a small flock.

25th. Wind E. Canvey Island. Large flocks of knots, in company with curlews and dunlins, very difficult to get near.

27th. Wind E., blowing hard. Shot two curlews from the yacht. A large bunch of wigeons (sixty) settled about four o'clock on Bargander, but too wild to approach. Several divers in Hadleigh Ray.

#### MARCH.

11th. Strong N.E. wind. Canvey Island. A flock of forty teal came in with the evening flight.

12th. Wind N.N.E., with snow squalls. The ducks evidently pairing; put up several couples in walking over the saltings.

13th. Wind E.N.E., half a gale. The blackheaded gulls had assumed the summer plumage. Not nearly so many curlews or dunlins about. Several bunches of wigeon in Ray; very wild and would not settle more than a few minutes at a time.

The punt gunners have done nothing, comparatively speaking, this winter. Some gunners have only shot two or three ducks the whole winter. Geese have been very wild, and, with the exception of Christmas week, the weather has been very bad for wild-fowling.

**Wild Cats.**—Being anxious that this subject—reintroduced by Mr. Corbin in the ‘Zoologist’ (S. S. 4376)—should be thoroughly sifted, I beg to offer the following remarks, in the hope of eliciting the opinions of others who may know more about the matter than myself:—First, as to the length of the tail of wild cats, which is a point made so much of, I have seen thirteen living British examples of what I believe to be the perfectly genuine indigenous wild breed, besides three or four times that number of stuffed specimens, and some skins, and in all of these the tail, although not quite as long in proportion as that of an average tame cat, is not quite short like that of a specimen in the Oxford Museum, shot in the Forest of Ardennes, or of a skin in the possession of a friend of mine, who does not know where it came from. The examples which I have seen (both living and dead) have all been of the same colouring,—perfectly correct, according to the descriptions in the best books on the subject (such as Bell),—except that in some examples, but not in all, there has been a small patch of white on the throat. All the tails are about the same size at the tip as at the root, and do not taper as in the ordinary tame animal; and, as implied before, are correctly ringed, and end in the orthodox black tag. Prof. Rolleston, of Oxford, says that a genuine wild cat has always a short tail (as the Belgian specimen referred to above), but if all these are only the descendants of tame animals gone wild, or of mixed parentage, is it not extraordinary that they should all be of the correct colouring? and if of the latter parentage, how is it that their tails are always (as far as my observation goes) of a uniform length, as they cannot all, from widely-separated parts of the country (but yet very locally and thinly distributed), have the same pedigree or equal proportion of wild and tame blood in them? Professor Owen, in his ‘History of British Fossil Mammals and Birds,’ under the section “Wild Cat” (p. 173), has the following:—“The tail of the domestic cat is more tapering, and a *little longer*, than in the wild cat.” (The italics are mine.) And even supposing all continental wild cats’ tails to be short, like the Ardennes specimen, why should we not have, peculiar to this country, a longer-tailed variety, which would not be nearly so extraordinary as is the fact of our having a peculiar species of wagtail (*Motacilla Yarrellii*), which, although endowed with the average powers of flight, is scarcely known on the Continent, while its continental representative (*M. alba*) is as little known here? Of the length and size of their legs, as compared with the tame animal, I will say nothing, as it is, I think, reasonable to suppose that cats in a state of nature might, in the course of several generations, increase in the strength of their limbs, and this superior size would take several generations before it again disappeared, and it is not therefore surprising that it is constant in specimens born in captivity. But there is one point in connection with their being born in captivity, which I think goes a long way to prove that they are really wild,—which is, that where they have been induced to reproduce in

captivity, it has invariably (I believe) been in the spring (about May), and only once in the year. As to the Ringwood example, its tail sounds correct, and, being only eight inches long, is shorter by three or four inches than those of the few specimens I have measured. Its general or ground colour is said to be "ashy" gray: it has always been a difficulty with me to know how to describe the ground colour of a wild cat, but I think *yellowish* gray would more nearly express it, and I see Bell (first edition) so describes it; the term *ashy* gray would, I think, more nearly describe the ground colour of the tame cats, which somewhat resemble the wild variety (? species) in colour; but this is perhaps "splitting straws," and some wild cats that I have seen, especially, I think, males, are of a rather more ashy hue than ordinary. The throat, breast, belly and feet of the Ringwood example are white. I have never seen one with so much white about it,—certainly none with white feet,—but I do not see that even the white feet need prove it to be tainted with tame blood (may it not perhaps be the result of long-continued breeding in and in, owing to the very limited number of the race in the district?); for, to take foxes,—one of the best known of wild animals,—how the colour varies in them from a light chestnut, through every intermediate shade of grayish red, down to mahogany colour with black pads and ears, and with great variety in the amount of white on the under side, with or without the white tag to the brush, and some with white pads, and no one will suspect this to be the effect of mixing with some domesticated animal. I do not understand from Mr. Corbin's description that the cat he writes of is at all *piebald*,—as suggested in the editorial note,—by which word I understand black and white in *patches*. Mr. Newman complains of the vagueness of the information in the second edition of Bell's 'Quadrupeds,' as to where wild cats are still to be found. I could give,—although by no means (I hope) a complete list of localities,—at any rate, some idea of the counties and districts where they linger; but do not do so, for obvious reasons, and will merely state a fact that seems to me to be somewhat curious,—that in very few places do the wild cat, and the perhaps equally little-known animal, the marten (or martens?) still survive, in the same district, the constant persecution to which they are subjected; but in several places where the wild cat is still supposed to exist, the last marten was killed some few years ago; and in other parts of the country, where martens still linger, no wild cat has been heard of for many years past. I fear I am not a sufficiently good hand at arguing to be able to convince Mr. Newman of the existence of wild cats in Britain; but if (as I gather from his editorial note) he has never seen one, and he will run down here some day, and see the pair I have in captivity,—one being the individual mentioned in my former letter on the subject (S. S. 3574),—I feel sure he will come round to the opinion that they are every bit as genuine wild animals as martens, otters,

or anything else, and not descended from any fugitive domestic animals.—  
*A. H. Cocks; Great Marlow, Buckinghamshire, March 20, 1875.*

[Mr. Cocks seems rather displeased with my scepticism in the matter of wild cats, but I sincerely hope that I have not exceeded the bounds of courtesy in my expressed doubts on this subject. I am willing to confess that I thought the Saffron Walden and New Forest specimens, as well as numerous other records I have received, open to question, and requiring a considerable amount of caution. I admit that, after all that has been written on the subject, I should be reluctant to decide on the claims of any individual pussy to be pronounced wild or tame.—*Edward Newman.*]

**The Whale off Happisburgh: Correction of an Error.**—In my account of the Happisburgh whale (S. S. 4418) it is stated to be a *male*: the specimen in question was a *female*.—*T. Southwell; Earlham Road, Norwich.*

**Blackwinged Kite in Ireland.**—I observe that in a lately issued part of "The Birds of Europe" (Nos. 35 and 36, Jan. 1875), Mr. Dresser has quoted a letter of mine published in the 'Ibis,' 1872, referring to a specimen of *Elanus cæruleus*, which was shot in the county of Meath, and is in my possession. Finding that there are one or two slight inaccuracies, both in the 'Ibis' and in Mr. Dresser's quotation, I think it desirable that they should be corrected. I have written for full particulars to Dr. P. T. Nicolls, from whom I received the skin, and he informs me that the bird in question was shot about thirty years ago by a Mr. Horan on the bog (not Bay) of Horsestown (not Harristown), near Beauparc, to the south of Slane—a locality which at that time was an almost impassable marsh, covered with long grass and coarse aquatic vegetation, but which is now reclaimed and good sound land. A bittern was also killed on the same day, from which, I think, we may infer that the season was either late autumn or early winter, just the time of year when most of the rare birds are obtained in Ireland. Dr. Nicolls received the kite quite fresh, and, thinking it was a pied hawk, skinned and preserved it, keeping it until he gave it to me about five years ago, when, on referring to Gould's "Birds of Europe," I saw at once that it was the blackwinged kite (*Elanus cæruleus*), and my friend Mr. A. G. More, of the Royal Dublin Society's Museum, who has seen and examined the bird, pronounces it to be immature, on account of some of the breast feathers being edged with brown. I believe that mine is the only specimen of *Elanus cæruleus* which has been yet obtained within the British Islands, and I shall be most happy to show it to any gentleman who may visit this neighbourhood.—*John F. Dillon; Lismullen, Navan, Meath.*

[I have at the request of my Dublin correspondents corrected several small errors that appear in the record as printed in the 'Field' of April 17.—*Edward Newman.*]

**Parrakeets and Locusts in Australia.**—The following extract from a letter written by a gentleman resident in Australia has been put into my hands, with permission to communicate it to the 'Zoologist.' The writer's family are well known to me, and I believe the statement may be relied on:—"In November, 1872, there was a mighty army of locusts where I was then living—about five hundred miles from Adelaide—which I shall never forget; day was almost night, they fell more thickly than hail, covering everything. I was living in a hut, which became full of them, large fires were put out by them, and trees had all the leaves eaten off them for miles, for the army was over thirty miles long, and when it had passed the country was a wilderness; no leaves—no grass—nothing. They were nearly three days passing us. On the 23rd of that month I was prevented from travelling by my horse refusing to face the living hail. It was the most wonderful sight I ever saw, and was followed by another curious sight, the ground being covered by an innumerable host of small green parrots, evidently feasting on the dead: they were so thick as to resemble green grass, or a most beautiful green velvet carpet."—*J. H. Gurney.*

**Curious Thrush's Nest.**—There is now in my garden a nest built in some ivy, clothing one of the walls, in which are three eggs,—thrush's eggs by their markings, and duly sat upon by a thrush. I was led to look for this nest by observing the actions of a blackbird. On finding it I told my two little boys it was a blackbird's nest, for it was duly lined as a blackbird's nest is, and there was no external difference observable. In a day or two my children came and told me I was mistaken—the eggs in the nest I had pronounced a blackbird's were thrush's eggs. I told them they were wrong; they *must* be, for the nest was unmistakable, and I went out myself to convict them by pointing out the resemblance—which I had several years ago commented on in the 'Zoologist'—between some blackbird's eggs and some thrush's eggs. But I was obliged, in taking two out of the three eggs out of the nest, to admit that the boys were right and I wrong. The eggs were thrush eggs, and no mistake. And I have seen the sitting thrush go off the nest once and again—the last time no longer since than about half-an-hour. There is literally not a speck of the clay lining left bare. The nest is in every characteristic that of a blackbird, and by no means that of a thrush.—*J. C. Atkinson; Danby, April 10.*

**Tawny Pipit.**—I have to record the capture of a tawny pipit, which was netted here by a man employed in catching goldfinches on the 8th of November, 1874, who first took it for a young lark and then for a male titlark.—*Arthur J. Clark-Kennedy; Onslow House, Eastbourne, April 9.*

**Crows attacking Small Birds.**—On the morning of the 8th of April I was much interested in a chase of a small passerine by a crow. As far as I could determine the smaller bird was a female chaffinch, but whatever it was it showed the utmost gameness, and was, I am glad to say, rewarded

for its courage by finally escaping. In its flight the chaffinch wheeled and jerked, rose high in the air, and sunk within a few feet of the ground with amazing rapidity; but for all this it several times escaped its death-blow by a mere hair-stroke. The crow's mode of attack was not with its bill but its wings, with which, when sufficiently close, it made an eager swoop downwards in a transverse direction. As soon, however, as the chaffinch had manœuvred its flight from the open and darted to the neighbouring shelter of a cluster of trees and shrubs, *Corvus* gave up his pursuit, evidently being aware that any further attempt on his part would be useless, for with the advantage of trees and bushes his nimble prey would have easily baffled him. While going to Ayrshire on the same day I noticed from the carriage windows what *seemed* to be a crow with some small bird in its bill, but as the train was an express I could not distinguish with absolute certainty what the object was; and a reason for thinking it was possibly a bird lies in the fact that if it had merely consisted of some attached twigs, or other favourite nest-building substance, the crow would have been flying straight for its nest, and high in the air, as the *Corvi* always do: it is besides rather after their usual period of nidification. But I have previously seen, and had in fact seen that very day, a crow beating about the hedge-rows, evidently seeking to drive some of the concealed passerines from their shelter out to the open ground, where he would have a pretty sure chance of making a capture. Still, I make this statement guardedly, and am quite ready to be convinced of the contrary if it should be disproved, for I do not remember ever reading of a similar case, and have never myself before observed such an occurrence.—*W. Sharp; Glasgow.*

**Moorhen and Snipe feeding on Bread.**—During the extraordinarily severe weather of the last week in the old year, when the snow lay here from a foot to fifteen inches deep on the level, and was drifted in places from six to ten or even twelve feet in thickness, great distress of course was experienced among the birds. The constant custom of the house is, all through the winter, to throw out on to the terrace below the dining-room window, a good supply of crumbs, soaked crusts, &c. In the very cold week noted above the supply was provided twice a day, namely after breakfast and at the children's one o'clock dinner, and among the daily visitants or pensioners were a waterhen and a snipe; and strange to say the latter was seen, on occasion of each visit to the feeding ground, to partake eagerly of the bread crumbs which had been thrown out. This was at the same window below which, in two consecutive springs many years ago, I received visits (? of enquiry) paid by a pair of cornerakes.—*J. C. Atkinson.*

**Nesting of the Teal in Hampshire.**—During the summer of 1874 I had the gratification of obtaining eggs of the teal from the valley of the Avon, having found a nest myself in the forest, the incidents attending which may not be uninteresting. On the 27th of April I and a friend were in the forest

for entomological purposes, when in an oak wood I discovered a teal's nest containing eleven eggs. The locality of the nest was made known by the exit of the hen bird, which flew off, just over the tops of the fern, in an apparently crippled and broken-winged condition to a brook about three hundred yards distant. The nest itself was placed amongst a large tuft of heather and brambles, the whole overshadowed by a small oak tree. The sides of the nest were of moss, and a sprinkling of lichens, all of which were woven together into a compact mass with an abundance of down from the parent bird. The inside of the nest, which seemed to be built in a slight depression in the ground, was lined with dead leaves and fern; and my feelings may be better imagined than described as I contemplated the beautifully constructed nest—almost reminding one in form, and at a casual glance, of the nest of the chaffinch—and the eleven lovely eggs which it contained. I took six of them, but was very careful not to disarrange the nest, lest the old bird should forsake it. I may state that the eggs were quite fresh. I did not visit that part of the forest again until the 12th of May, when curiosity led me to the spot where I had found the previously-admired nest, but was greatly surprised to find it torn to atoms, and the materials all heaped together in one common ruin. On taking up some portions of the nest I found three of the eggs amongst it; the other two had entirely disappeared. What could have been the cause of such a demolition? If it was a birds'-nest hunter he certainly would have taken the remaining eggs; if the parent bird had torn her nest to pieces she would as certainly have left the whole number of eggs; or if a stoat, or other depredator of a like nature, had been there, is it not possible that the whole number would have been sucked, and that the shells of those missing would have been found near? Such, however, was not the case, as I searched for them unsuccessfully for some considerable time. I may state that an unusual number of wild ducks were to be met with in the forest during the breeding season, but whether the peace secured to them by the "Wild Birds Protection Act" was the cause of such abundance I am not prepared to say; certain it is that prior to its enactment ducks and other wild fowl were most unmercifully slaughtered at almost any season, and especially when the "flappers" were just able to get upon the wing.—*G. B. Corbin.*

**Coot near Ringwood.**—Within my short ornithological experience this species has become much more common in this immediate neighbourhood. Some of the older writers on British birds—notably Bewick—speak of it as somewhat uncommon, and instance the depredations of some of the falcon tribe amongst the young coots as a possible, if not probable, cause of the scarcity of the species. We well know that many of the hawks are becoming scarcer every year, and that some are nearly or quite extinct, and it would be interesting to know whether the loss of the birds of prey has, in any marked degree, made a difference in the number of those species upon

which they preyed. I know of few species of birds which are more clamorous than the coot in the pairing season; night and day seem alike agreeable to their vociferous business of "choosing a mate," and many are the gestures, chasings and fierce struggles which seem to take place before this important object is so far matured that nest-building may be commenced, and even then the mated are often annoyed by those who are less fortunate than themselves; for, like the rooks, they seem to delight in tormenting each other during the all-important business of nidification. I have often found the nest and young, and their shrill note—something resembling that of the little grebe—is pleasant to listen to, as their parent takes them out on a short excursive swim alongside the flags which hitherto have been their home. In Scotland the coot is said to be migratory during the winter, but here I believe it is a decided resident, although perhaps its numbers are increased during winter by arrivals from the north; for notwithstanding the numbers which are killed every spring and autumn, it seems as abundant as ever if unmolested for a time. There is one difficulty in the preservation of the coot which I would thank any reader of the 'Zoologist' to assist me in meeting,—*viz.* the preservation of the fleshy protuberance above the bill—so conspicuous in the breeding season—which gives such a marked character to the bird.—*G. B. Corbin.*

**Graylag Goose near Penzance.**—I saw just now a fine plumaged bird of this species at Mr. Vingoe's for preservation, and I understand he received it from the neighbourhood of Hayle, a few miles to the north of Mount's Bay. This is the second specimen that has come under my notice of the *Anser ferus* over many years, consequently it may be regarded as a *rara avis* in the West of England. I have seen one garganey duck this spring so far, but it is early for them as yet. This beautiful little duck is always at this season of the year in the most perfect state of developed plumage; they never visit us except in the spring months.—*Edward Hearle Rodd; Penzance, March 23, 1875.*

**Little Gull in Summer Plumage in February.**—A fine specimen of the little gull was shot last week in nearly full summer plumage. It was killed by Mr. H. Smither, of Churt, near Frensham, whilst out snipe shooting.—*W. H. Legg; Farnham, Surrey, February 24, 1875.*

**Fulmar Petrel in Mount's Bay.**—The fulmar very rarely visits us in the south. I note, however, one which was picked up dead on our beach in high adult typical plumage, *viz.*, with the upper parts bright bluish gray and the under parts unsullied white. In comparing it with a specimen I have which was procured from Mount's Bay, it appears to be about half the size only of mine, which has the *upper* plumage mixed with *white*, and bluish brown striated markings. Whether this latter plumage is indicative of greater age than the blue back birds I am unable to say, but the difference in the size of the birds is very remarkable, and I was unaware of this

character of the species until I observed that Mr. Gould refers to it in the description of this bird.—*Edward Hearle Rodd; Penzance, March 23.*

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**Large Salmon.**—A very fine male fish, taken from the river Maas, in Holland, is this day exposed for sale at Mr. R. S. Simpson's shop, in Bull Street, Birmingham. The salmon is in magnificent condition for the table, and measures fifty-four inches from the tip of the nose to the end of the tail; its greatest girth being twenty-five inches and a half, and its weight forty-nine pounds.—*W. R. Hughes; Birmingham, April 17, 1875.*

**Boar-fish at Torcross.**—A specimen of the boar-fish, six inches and a quarter long, was taken on Wednesday the 7th inst. in a net with plaice, at Torcross.—*Richard P. Nicholls; Kingsbridge, April 9, 1875.*

**Tenacity of Life in Sharks.**—Apropos to Captain Hadfield's remarks hereupon (S. S. 4416) I may mention that some years ago, in the Southern Indian Ocean, I cut out the heart of a captured blue shark for the purpose of observing how long its muscular action would continue, and found that it did not cease a perfectly regular expansion and contraction for four hours, after which the movement slowly came to an end. I have frequently noticed the jaws of this species snap violently, when anything touched the head, some time after the latter had been severed from the body.—*E. B. Kemp-Welch.*

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## Proceedings of Scientific Societies.

### ZOOLOGICAL SOCIETY OF LONDON.

*April 6, 1875.*—Dr. E. HAMILTON, Vice-President, in the chair.

A letter was read from Dr. G. Hartlaub, stating that the finch described by him and Dr. Finsch as new, in the Society's 'Proceedings' for 1870 (p. 817), and named *Lobospiza notabilis*, was probably only the young bird of *Amblyura cyanovirens*.

Dr. A. Günther exhibited the skin of a new species of mole from British Caffraria, which he proposed to call *Chrysochloris Trevelyani*.

The Secretary exhibited, on behalf of Mr. Gould, the original specimen of the parrot (*Aprosmictus insignissimus*) spoken of by Mr. Gould in his communication to the Society on the 3rd of November, 1874; also specimens of two other new species of birds from Northern Queensland—a new honey-eater (proposed to be called *Ptilotis flavostriata*) and a new parrot (proposed to be called *Cyclopsitta Maccoyi*).

Mr. Osbert Salvin read a memoir on the Avifauna of the Galapagos Archipelago. After a summary of what was known of the history and physical peculiarities of these islands, Mr. Salvin proceeded to give a complete account of the birds as at present known to us from the visits of

Mr. Darwin, of the naturalists of the Swedish frigate 'Eugenie,' and of Dr. Habel, whose collection afforded the principal materials upon which the present communication was based. Of the fifty-seven species of birds known to exist in the Galapagos about two-thirds were stated to be peculiar to the Archipelago.

Mr. A. G. Butler read a memoir on the Heterocerous Lepidoptera of the family Sphingidæ, in which a complete revision of the various genera and species of this family was given.

A communication was read from Dr. J. S. Bowerbank, entitled "A Monograph of the Siliceo-Fibrous Sponges," part iii., being the third of a series of memoirs on this class of sponges. A second communication from Dr. Bowerbank contained the seventh part of his contributions to a 'General History of the Spongiadæ.'

Mr. A. H. Garrod read a paper on the form of the trachea in Tantalus Ibis, in which the peculiar and numerous convolutions of that tube within the thorax of that bird were described.

A communication was read from Mr. G. S. Brady, in which he gave a revision of the known species of British marine mites, together with descriptions of some new species.

Mr. C. A. Wright read a paper on the question of the specific identity of the weasel found in Malta, which he was inclined to refer to *Mustela boccamela*, *Bp.*, hitherto only known to occur in Sardinia.—*P. L. Sclater.*

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#### ENTOMOLOGICAL SOCIETY OF LONDON.

March 1, 1875.—Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

##### *Donations to the Library.*

The following donations were announced, and thanks voted to the donors:—'Beiträge zur näheren Kenntniss der in dem Baikalsee vorkommenden niederen Krebse aus der Gruppe der Grammariden,' von Dr. B. N. Dybowski; 'Horæ Societatis Entomologicæ Rossicæ,' t. x., nos. 1—4; presented by the Society. 'Tijdschrift voor Entomologie, nitgegeven door de Nederlandsche Entomologische Verein,' t. xvii., nos. 1—6; by the Society. 'The Canadian Entomologist,' vol. vi., no. 12; by the Editor. 'The Entomologist's Monthly Magazine' for March; by the Editors. 'Newman's Entomologist' and 'The Zoologist' for March; by the Editor. 'List of the Lepidoptera recorded as having been found in New Zealand previous to the year 1871,' by R. W. Fereday, C.M.E.S.L.; 'List of the Insects recorded as having been found in New Zealand previous to the year 1870,' by Capt. F. W. Hutton, C.M.Z.S.; by R. W. Fereday, Esq.

*Election of Member.*

W. D. Robinson-Douglas, Esq., of Orchardton, Castle Douglas, a Subscriber to the Society, was balloted for and elected an Ordinary Member.

*Exhibitions, &c.*

Mr. F. H. Ward exhibited some living specimens of a *Lepisma* allied to *L. saccharina*, which he believed to be a new species in this country, and which was found in a bakehouse near London, in the brickwork of the oven and other warm places about the buildings. Mr. M'Lachlan suggested that it might have been introduced in some American flour, as Mr. Packard had recently published an account of a species which was found in America, closely allied to *L. saccharina*, and which he suspected might prove identical with the present species.

Mr. Ward also exhibited some microscopic slides showing specimens of the Chigoe, male and female, and portions of human skin with the insect attached.

Mr. Champion exhibited larvæ of *Empusa pauperata*, sent by Mr. Walker from Corfu.

A note was received from Mr. W. C. Boyd, with reference to some fleas exhibited at the last meeting. He stated that fleas were frequently found on the *inside* of the ears of wild rabbits, especially about this time of year, and that his brother had seen a rabbit which must have had three hundred fleas in the two ears, and that they looked as if smeared inside with black paint. He believed the rabbits were not much troubled by the presence of the parasites, as he had never noticed any inflammation, however many fleas there might have been. He also found that hedgehogs usually swarmed with fleas. Mr. Gorham said he had received fleas from a friend who had found them on mice.

Mr. Dunning directed attention to an interesting paper by Dr. Leconte on Entomological Nomenclature and Generic Types, which appeared in the December part of the 'Canadian Entomologist.'

*Paper read.*

The Rev. H. S. Gorham communicated a paper containing descriptions of eighteen new species of Endomyeici from various tropical countries.

March 15, 1875.—Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

*Donations to the Library.*

The following donations were announced and thanks voted to the donors:—'Proceedings of the Royal Society,' vol. xxiii., no. 159; presented

by the Society. 'Annales de la Société Entomologique de Belgique,' tome xvii., fasc. 2; by the Society. 'Stettiner Entomologische Zeitung,' 1875, nos. 1—3; by the Society. 'The Canadian Entomologist,' vol. vii., no. 1; by the Editor. 'Entomologische Nachrichten,' nos. 1—4; by the Editor. 'L'Abeille,' 1875, 3e livr.; by the Editor. 'L'ennemi de la Pomme-terre: Notice sur le *Doryphora decemlineata*,' par Oswald de Kerchove de Denterghem; by the Author.

By purchase:—Boisduval, Dr. J. A., 'Species général des Lépidoptères Hétérocères: tome Ire, Sphingides, Sésiiides, Castnides;' and Atlas of eleven plates.

### *Exhibitions, &c.*

Mr. Sealy, who had recently arrived from India, exhibited some fine examples of a species of Ornithoptera, bred from larvæ taken in Malabar, feeding on *Aristolochia indica*.

Prof. Westwood exhibited drawings of several undescribed Coleoptera, of remarkable forms, of which it was his intention to forward descriptions to the Society. Amongst them was an insect from the collection of M. Mniszech, which bore a strong resemblance to a *Rhysodes*, and which he had named *Rhysodina Mniszechii*, but which was really a Heteromorous insect.

Mr. M'Lachlan remarked that the species of *Lepisma* exhibited at the last meeting by Mr. F. H. Ward, did not, on examination, correspond, as he expected, with the description of *L. domestica*, a common species in the United States, nor did it coincide exactly with the descriptions of any of the other described species, so far as he had been able to compare them.

Prof. Westwood said he had seen British examples of *Lipura corticina*, *Bourlet*, on apple trees, though the insect was not included as British in Sir John Lubbock's Monograph.

Mr. C. O. Waterhouse exhibited a living specimen of *Monohammus Heros* bred in England from foreign timber.

Dr. Sharp forwarded the following correction of an error in the third paper in the 'Transactions' for 1873:—

"Herr Wehncke, of Harburg, has called my attention to an error I have committed in a paper on the water-beetles of Japan, published by the Society in the first part of its 'Transactions' for 1873. The species described there by me under the name of *Hydaticus japonicus* (p. 48) is undoubtedly the *Hydaticus Adamsi*, *Clark*, while the species alluded to by me, in the same paper, as *Hydaticus Adamsi*, is the *Hydaticus Bowringii*, *Clark*. The error was occasioned by an unfortunate transference of name in a letter Mr. Lewis wrote to me after making an examination of Clark's types."

Mr. Butler read the following review of Boisduval's recently-published volume of the *Suites à Buffon (Lépidoptères)*, containing the Sphingidæ (including *Zygæna*, &c.):—

“Dr. Boisduval’s long-expected work on the Sphingidæ has at length appeared: it is illustrated by eleven excellent coloured plates; and if these had been published without the letterpress, Lepidopterists would have had cause to be grateful to the author; as it is, the work of this veteran entomologist contains so many errors and omissions, that it only obscures the subject which it should have assisted in illuminating. Not only has Dr. Boisduval, in the 380 pages devoted to this magnificent group, apparently taken no pains to ascertain what has been done by other workers during the last nineteen years (entirely overlooking even the Supplement to Mr. Walker’s Catalogue), but he has returned to the errors of Fabricius and his contemporaries, in his disregard of the law of priority: he calmly renames well-characterized genera and species, quoting the universally accepted names as synonyms, and gives no reason whatever for so doing; he constantly gives to his own MS. names preference to the descriptions of others; he quotes Catalogue lists of undescribed species, thus conveying to the mind of the unwary student the impression that his species have long been characterized; and in addition to all this he hopelessly confounds together subfamilies and genera whose larvæ are utterly distinct. In proof of the recent publication of this work (dated 1874) I feel compelled to subjoin an extract from a letter which I recently received from the author, dated 18 Fevrier, 1875:—‘Le species des Sphingides, Sesiides et Castniides sera mis au vente Lundi prochain chez M. Roret editcur, Rue Hautefeuille à Paris.’”

The Rev. R. P. Murray communicated the following remarks:—

“The species of *Terias* forming the *Hecabe* group have long been a source of perplexity to me, and for some time I have entertained a suspicion that most of them were referable to but one species, *T. Hecabe*, *Linn.* I think I am now able to bring forward proof that *T. Æsiope*, *Mén.*, at least, is only a form of *Hecabe*, and some evidence that the same is probably the case with *T. Brenda*, *Doubl., Hew.*, and *T. Sari*, *Horsf.* I have frequently received from Mr. Miskin, of Brisbane, specimens of typical *T. Hecabe* from Rockhampton, and also others of *T. Æsiope* from Brisbane, these forms being common in their respective localities, while it is by no means common to find them intermixed. So far the only evidence in favour of their forming but one species was afforded by the large number of specimens intermediate in character which came from Rockhampton. But I now learn, by letters received from Mr. Miskin, that he has succeeded in breeding both forms from larvæ found on the same plant (*Indigofera*, sp.), and that he is now convinced that both forms belong to the same species. The curious distribution of the forms would tend to prove that the difference in markings is not sexual, but dependent on certain conditions as yet unknown to us. Both forms appear to be equally common in N.W. India, from whence I have received them in considerable numbers.

“I have never received the form *T. Æsiope*, *Mén.*, from Japan, where typical *Hecabe* is common, but curiously enough I have seen large numbers of a *Terias* from Japan, which are, for the most part, indistinguishable from *T. Brenda*, *Doubl.*, *Hew.*, originally described from West Africa, but which graduate insensibly in typical *Hecabe*, so that I am strongly inclined to believe that this form (*Brenda*) replaces in Japan the *Æsiope* of Queensland.

“The evidence is not so strong with regard to *T. Sari*, *Horsf.*, typical specimens of which seem exceedingly different from *T. Hecabe*, *L.* I possess, however, three specimens from Malacca, two of which are well-marked *T. Sari*, while the third, which is much smaller, presents certain peculiarities in the interior outline of the black hind margin of the anterior wings. Below, however, the quadrangular blotch distinctive of *T. Sari* is well-marked. A fourth specimen from the same locality, which must be referred to *T. Hecabe*, while presenting no trace of the blotch on the under side, exactly agrees in size, and in the markings of the upper side, with the third specimen just described. So that I think it is at least possible that *T. Sari* will ultimately be found to be but a form of the inconstant *T. Hecabe*.”

Prof. Westwood suggested that the case might be analogous to that of certain English species of *Pieris*, where certain forms,—*e. g.*, *P. Napææ*, *Esp.*, and *P. Sabellicæ*, *Steph.*,—now universally recognised as varieties of *P. napi*, *L.*, had long been considered as specifically distinct. Prof. Westwood also suggested that attention should be paid to the times of appearance of the various forms, and the period noted during which they remained in the pupa stage.

Mr. A. G. Butler remarked that the latter circumstance had an important bearing on the case of *Papilio Ajax*, *Linn.* He expressed a doubt as to the correctness of the supposition that *T. Sari* was only a form of *T. Hecabe*, though he thought that the breeding of the latter and *T. Æsiope* from the same food-plant was a strong point in favour of their identity.

#### *Papers read.*

Mr. J. S. Baly communicated descriptions of new genera and species of Phytophagous Coleoptera.

Mr. C. O. Waterhouse read a paper on the Lamellicorn Coleoptera of Japan.

Mr. F. Smith read “Descriptions of New Species of Indian Aculeate Hymenoptera collected Mr. G. R. James Rothney;” and also a “Description of New Species of Bees of the Genus *Nomia*, *Latreille*.” Referring to the latter, he mentioned that he was now acquainted with five species, the males of which were furnished with capitate antennæ.—*F. G.*

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**Obituary Notice of the late Dr. Gray.**—John Edward Gray, for fifty years an active officer of the Zoological Department of the British Museum, from which Institution he retired only in last December, succumbed to the inclemency of an English spring on Sunday, the 7th of the present month (March), having just completed his seventy-fifth year. He was the son of Samuel Frederick Gray, who acquired considerable notoriety as a botanist from his having been the first to introduce Jussieu's classification of plants into this country, in a work intituled 'The Natural Arrangement of British Plants,' Dr. Gray himself strongly advocating the new system. The reception of the work was not altogether favourable, for at that time there was a very prevalent feeling, especially in the Linnean Society, against the introduction into the science of Botany of any other than the sexual and numerical classification promulgated by Linneus. It was probably under these circumstances that Dr. Gray turned his attention more exclusively to Zoology, and in 1824, through the influence of the late John George Children, he was appointed an assistant in the Zoological Department of the British Museum; and in 1840, on the retirement of Mr. Children, he succeeded to the post of Keeper of the Zoological Collection to that establishment.

Few naturalists now living will recollect the meagre state of this collection when Dr. Gray's services were first acquired; but those who, like myself, can look thus far back into the past, will bear willing testimony to the vast improvements which took place under his auspices: his labours were energetic and unremitting, and he eventually succeeded in obtaining for our National Collection a reputation second to none in Europe. And here it must be observed that this eminent success is not to be attributed *solely* to Dr. Gray's incessant zeal in advocating the purchase by the Trustees of collections made by our fellow countrymen and others in all parts of the world,—seeing that whenever he experienced a difficulty in obtaining the necessary supplies from Parliamentary grants, he did not hesitate to apply his own income to the acquisition of a specimen or a collection which he considered it important that the nation should possess. Indeed the growth of the collection under so liberal a *régime* outran the means of accommodation, and the crowded state of the shelves soon tended in some degree to preclude the careful examination of the multitudinous objects assembled.

The task of describing and cataloguing these vast collections followed as a matter of course. This was a most Herculean labour, and one that could not be accomplished single-handed. Dr. Gray therefore engaged the assistance and co-operation of the most advanced zoologists in every department of the Science. Thus, through his instrumentality, we have *eight* catalogues of sucklers, *three* of sucklers and birds together, *nine* of birds, *six* of reptiles, and *twelve* of fishes. It is, however, in Entomology that he has rendered the greatest service to Science, having issued *thirteen* catalogues of Coleoptera, *five* of Orthoptera, *five* of Neuroptera, *ten* of

Hemiptera, *forty-one* of Lepidoptera, *seven* of Diptera, *ten* of Hymenoptera, and *three* of Crustacea. In addition to these we have *sixteen* catalogues or lists of Molluscous, and *four* of Radiate animals. Again, we have a series of *twenty* catalogues of exclusively British animals; thus, by separating the British from the general collections, the English student has the opportunity of acquiring, with less labour, a knowledge of the natural productions of his own country. This simple enumeration of catalogues exhibits more clearly than can be done by any words of mine, what Dr. Gray accomplished on behalf of Natural History in our country, but these catalogues by no means comprise the whole of his most useful labours in this direction. In the 'Spicilegia Zoologica' he published original figures and short systematic descriptions of new and previously unfigured animals, and these were continued in the 'Zoological Miscellany,' a serial having the same style and objects. He also contributed the Natural-History portion of the 'Voyages of the Erebus and Terror,' only lately completed. Of his various minor papers, the list alone—published in 1852—occupies twenty pages in the 'Bibliographia Zoologiæ'; and the Catalogue of the Royal Society enumerates no less than four hundred and ninety-seven papers from his ever-active pen.

Dr. Gray's descriptions are almost entirely confined to the exterior; it seemed his especial aim to seize on those differences which are the most obvious, and would be the first to be noticed by the student when he begins to turn his attention to the examination of species; and in that department he was successful and lucid. It was perhaps my misfortune to differ from him in his view of the paramount value of superficial character, believing, as I do, that we should first associate those animals which agree in intimate, internal, and physiological characters, and only utilize differences of the exterior or extremities in the smaller groups as of genera or species. As an instance of the tendency I have mentioned, I believe that Dr. Gray to the last persisted in treating the marsupial animals as a section of the *Feræ*, or beasts of prey, whilst others have considered these wonderful creatures as forming a series equally important with the placental series, and in many instances parallel therewith. In this view of the primary importance of the marsupial character I always concurred, and hence it was my misfortune to differ from one whose knowledge and industry had placed him at the very head of the Science. It seems desirable to add that in the expression of this view as to the comparatively minor importance of the marsupial character, Dr. Gray is supported by the published works of six eminent zoologists, enumerated by Mr. Waterhouse in his 'Natural History of Marsupialia, or Pouched Animals': these are Storr, Illiger, Frederic Cuvier, Bennett, Swainson and Ogilby. In the work to which I have alluded, Mr. Waterhouse has expressed an opinion opposed to that of the eminent zoologists I have mentioned, but in exact accordance with my own. As a

noteworthy exception to the propensity to avail himself of external characters in his descriptions, I am delighted to invite attention to the use which Dr. Gray made of the skull in some of his most valuable contributions to Zoology. I would particularly mention three very recent instances. The *first* appears in the 'Zoologist' for December, 1872, and is intitled "The Seals that permanently reside in or occasionally visit the British Islands" (S. S. 3333); the *second* is in the same journal for January and continued in March, 1873, and intitled "A Catalogue of the Whales and Dolphins inhabiting or incidentally visiting the seas surrounding the British Islands" (S. S. 3357 and S. S. 3421); and the *third*, which exceeds both the others in permanent value and in richness of illustration (being accompanied by excellent figures of no less than forty-two skulls), is published as a separate volume, intitled 'Hand-list of the Edentate, Thickskinned and Ruminant Mammals in the British Museum': it is dated 1873. These, the latest of Dr. Gray's labours—and it may truly be said of them, *Finis coronat opus*—are wonderful examples of vigour of mind and energy of purpose, enduring to the very close of life.

In his domestic relations Dr. Gray was peculiarly happy: in 1826 he married Emma Maria Gray, the widow of a cousin, and a lady equally remarkable for her amiable disposition, her numerous accomplishments, and for the cordial and indefatigable assistance she rendered to her husband in his scientific pursuits. As an artist, her faithful delineation of moluscous animals for the use of students is above all praise. Few naturalists had previously ventured beyond the shell, and I am old enough to recollect the time when to prefer the anatomical details of the somewhat uninviting *animal* to its elegantly formed and often brilliantly coloured *dwelling*, would have been considered an indication of the worst possible taste. Mrs. Gray thought otherwise, and her judgment has been accepted by all who have followed her in the study of these little-known objects. Her admirable drawings were of infinite assistance to her husband.

The mortal remains of the naturalist were interred at Lewisham old church on Saturday, the 13th of March. The funeral rites were performed in the simplest and most unostentatious manner. A plain hearse conveyed the coffin, and was followed by two private carriages containing the mourners, who were few in number, and confined to the immediate relatives of the deceased and one or two of his most intimate friends. By Dr. Gray's emphatic and repeated request, no mourning coaches were employed. Dr. Günther, Mr. Frederick Smith, Mr. Busk, together with Dr. Gray's two old Museum attendants, Mr. Gerrard and Mr. J. Saunders, stood round the grave, and thus paid the last tribute of respect to one of the greatest zoologists that this country has ever produced.—*E. Newman.*

*Notes on the Natural History of South Africa.*

By R. B. and J. D. S. WOODWARD, of Natal.

(Continued from S. S. 4445.)

*Crocodyles and Monitors.*—Crocodyles (*Crocodylidae*) are still to be seen in large numbers at the mouths of most of the rivers of Natal, but owing to the stony nature of many of the streams they seldom travel far inland. They are, however, occasionally killed over fifty miles from the sea, in the Umzimkulu, Umkomanzi and Zugela, the largest rivers here. A few days ago we saw two fine specimens that a friend of ours had caught in a lagoon near his place: they were taken in rather an ingeniously contrived trap, made on the same principle as the ordinary mouse-trap: the bait, a lump of meat or fish, is fastened to a spring, on touching which a beam, loaded with several hundred pounds weight of stone falls on the head of the crocodile, completely crushing the animal beneath it. We are told that many alligators are killed in America in this manner. These animals are very voracious, and it is considered highly dangerous to bathe in the places they frequent. People living in their vicinity complain that they lose a number of dogs, and no doubt they also destroy many antelopes and other game, which these reptiles could easily capture on their approaching the water to drink. Crocodyles are useful scavengers, devouring all kinds of carrion, and they must have a sumptuous feast after one of our summer floods, when an enormous quantity of animal and vegetable matter is washed down by the force of the current to the sea. We were told by a traveller in Zululand, that one day whilst out shooting ducks, and up to his knees in water, he nearly stumbled against a crocodile lying right before him, but, luckily for him, the beast seemed as much alarmed as himself at the unexpected encounter, and quickly waddled off into the deeper water. In America shark-hooks are used for taking alligators; but we have not heard of their being tried in Natal: certainly fire-arms are of very little use owing to the thickness of their skins. They grow to the length of from ten to twenty feet. The female lays a number of strong-shelled eggs about the size of those of a goose; these are hatched by the sun: those who have tasted them say that, although rather strong-flavoured, they are not bad eating.

There are two species of monitors, or African iguanas, found

here: the largest (*Monitor Niloticus*) haunts most of the rivers and streams, feeding principally upon a small species of crab, which is very abundant. This is a fine large reptile, usually attaining the length of from four to five feet, and is covered with a thick scaly skin: the huge jaws, lined with sharp-pointed teeth, and the long forked tongue give the beast quite a formidable appearance, yet it is perfectly harmless, and scuttles off with its peculiar waddling gait at the least alarm. If on coming across one of these reptiles you remain quite still, it will often come close up to you, not minding your presence any more than if you were a stone or stump of a tree, but should you happen to stir ever so slightly it makes the best of its way to the nearest water. Its movements are awkward when on land, so that it can be easily overtaken and killed, but in the water it seems quite at home, swimming and diving with great expertness and zest.

Our tree monitor is, we believe, the same as that mentioned by Dr. Smith as the *Narana albogularis*. It does not seem to be amphibious, confining itself to the bush, and living chiefly in the trees, which it climbs with surprising agility. It feeds on tree frogs, crickets and other insects, occasionally varying its diet with vegetable food. This animal cannot be said to be entirely inoffensive, as it sometimes pays a visit to the fowl-house, where it devours both the poultry and their eggs.

We once tried the experiment of keeping Muscovy ducks on the Ifafa, but in a few weeks they were all destroyed by the river monitors. In appearance both species closely resemble one another, but the tree monitors are rather smaller than the other kind. It is wonderful how tenacious of life they are: one having taken refuge in a tree, four bullets from a Colt's revolver and a heavy charge of lupers were lodged in its body before it fell, and even then, being attacked by two dogs, it showed fight and lived for several hours afterwards. Both the above reptiles lay a number of parchment-like eggs, which they deposit in a hole in the ground; they are said to hatch by the warmth of their bodies, like the larger snakes. During the day these creatures make no noise, but at night we often hear their loud flute-like whistle, which has a monotonous and rather melancholy sound.

*Owls.*—We have already mentioned the eagle owl (*Bubo capensis*) as being found in Natal; we will now notice three other species.

The common eared owl (*Bubo maculosus*) is a fine bird, about twenty inches long; its colour above is brown, spotted and streaked with white; underneath it has wavy bars of the same colour; the eyes are large and full, the iris being of a beautiful saffron-yellow; the ears when erected are very conspicuous, and easily discernible on a moonlight night. This owl is frequently met with throughout the colony; its hoot is loud and sonorous, but rather monotonous, being simply the two notes "hoo, hoo," uttered two or three times in succession. We have a good specimen of this owl and its eggs in our collection. The eggs we obtained from a native; they are four in number, and are round white eggs, an inch and a half in diameter; they were laid in a hole on the side of a steep bank. Its food is very similar to that of the other owls, principally mice and rats, occasionally taking larger animals. Only the other day a friend was speaking of the mischief they did amongst his pigeons by entering the dove-cote at night and extracting the birds. A tame owl of ours lately, having escaped from its cage one night, entered a barn near and tore off the heads of two doves.

Another common species is the swamp owl (*Strix capensis*): unlike most owls, it is gregarious; we have met with them in considerable flocks in marshy places, where they lie sheltered during the day by the rude and long grass. When disturbed they rise like a covey of partridges and alight some yards further on. They feed on frogs, lizards, mice, and some kinds of aquatic insects. The colour of its plumage is reddish brown on the back, yellow spotted with brown on the under parts; the eyes are black and extremely small; the bill and legs are more like those of a hawk; the legs are long, almost bare of feathers, and the feet are armed with sharp curved claws.

*Strix affinis* is a smaller owl; indeed it has sometimes been mistaken for *Strix flammea*, but the plumage, although much similar, is darker. This bird has a loud peculiar "hoot" of its own, very different from the screech of the home species. It is particularly a wood owl, inhabiting the same localities as the eared owl (*Bubo maculosus*). On a still night we often hear the two kinds holding a sort of concert together: any one not knowing the birds would suppose the hooting to proceed from a single species: the notes of the smaller owl are the most musical, being not unlike the cooing of a turtle dove. On the 22nd of October, 1872, we obtained one of these little owls only just fledged, which

we reared and kept eighteen months: it became extremely tame, and would even "hoot" whilst roosting on our hands. When about a year old we got him a companion, which we took from a hole in an old tree: the two lived together in great amity, and would constantly caress each other, like a pair of love birds. It lays two or three white eggs and forms no nest, frequenting the same hole every year: they are said to breed in the roofs of farm-houses.

*Hawks.*—We shall note a few of the common species we have met with in Natal: there are an immense variety of the Falconidæ: Mr. E. Layard enumerates no less than forty-seven different species in his 'Catalogue of the Birds of South Africa'—a valuable book of reference for the African naturalist.

We have three very common sparrowhawks, *Accipiter Tachiro*, *A. Polyzonides* and *A. minullus*. They are, respectively, sixteen inches, fourteen inches and twelve inches in length. The plumage of the three birds is almost the same, being dark brown above and whitish beneath, with wavy bars. They are bold and rapacious in their habits, and are very destructive to poultry: we have seen the larger kind dart down and carry off a full-grown fowl within a yard or two of the spot where we were standing. We have also seen it pursuing a flock of pigeons: its plan of attack seemed to be to endeavour to separate one from the main body by dashing in amongst them; if it managed this it soon succeeded in bearing off its prey in triumph.

*Accipiter minullus* is a beautiful little hawk, not larger in the body than a thrush, but although so small it is quite as fearless as its larger cousins. A specimen we have in our collection was taken whilst vigorously assailing a hen with a brood of chickens, which she was doing her best to defend: it had actually grasped the fowl by the head, and would probably soon have overcome her had it not been disturbed. We kept one of these birds tame for some months, but it never lost its savage nature, and would not allow any other bird to be confined with it. It builds in a tall tree, making a large nest of sticks, which it occupies year by year, and lays from two to five eggs.

The blackcrested hawk (*Lophoaëtus occipitalis*) is entirely of a black-brown colour, with the exception of a little white on the under feathers of the wings and tail; the legs are covered to the toes with snow-white feathers, giving the bird the curious appearance

of having gaiters. We often see this hawk perched on the branch of a dead tree, watching the ground intently for its prey, which consists principally of mice, but it does not despise the larger insects, such as locusts. This is a most inoffensive bird, and rarely kills even small birds, and we have never heard of its taking poultry. It is naturally very tame, and will permit of such near approach without stirring that the Kafirs, who can easily knock it over with their knob-kerries, have given it the name of the "Ispumongate," or the fool. Its voice is a loud piercing shriek, more like that of an eagle; in fact, it has been classed amongst the *Aquilæ* by some naturalists. We have not come across their nests, but Le Vaillant says that "they build in lofty trees, and line their nests with feathers and wool; the female lays two round eggs, blotched with brownish red." Including the tail it is about two feet long.

We kept one of these hawks tame along with a specimen of the red kite (*Milvus parasiticus*). The plumage of the latter bird varies considerably, but it is usually dark reddish brown on the back and wings; head gray; breast light brown; belly red and white; cere and legs yellow; eyes yellow-brown; and in size rather less than the black hawk. The eggs we have were taken out of a nest built in a high tree; they are white, spotted with red, and two inches in diameter. After keeping this kite some months we let it loose, but it did not immediately take to a wild state, remaining about the house looking for food. This and some other kinds of hawks are eaten by the natives, who say that the flesh is quite equal to that of birds which feed on vegetables.

*Kingfishers.*—These lovely creatures are everywhere general favourites in those choice localities where they are to be seen, both on account of the beautiful tropical tints with which they are adorned, as well as for their sprightly and cheerful habits. Behold him now gliding over the surface of the water, his gorgeous plumage glistening in the rays of the sun, the next moment plunging deep and emerging with his finny prey! Will not the naturalist agree with us that it is a delightful recreation to spend an hour or two in a retired spot haunted by these fairy birds, meditating in the solitude? On such a theme as this one might almost be tempted to linger and forget facts. On the well-wooded banks of the Ifafa four varieties of the kingfisher are very common:—

1. *Halcyon fuscicapilla*.—This kingfisher is rather less in size than the common thrush. It is a beautiful bird, its plumage being dark blue on the back, wings and tail; under parts speckled, being yellowish with the centre of the feathers dark; head ashy gray; bill and legs red. It is not naturally so shy as most of the species, and will often perch on a branch near you, seeming to regard you with much curiosity, particularly if you happen to be working in your garden, when it will descend and carry off any worms or slugs you may turn up. This bird does not confine itself to a fish diet, but feeds largely on insects of various kinds. It is very fond of crabs, from which it has been called the “crab-eater”: it is frequently seen a long distance from water. We once kept a pair of these birds several months in a large cage: they were easily reared on finely-cut meat, varied occasionally by fish and worms when they could be obtained. In confinement they uttered a few loud shrill notes, the same as they make in their wild state. These kingfishers are evidently hardy birds, and if supplied with plenty of water for bathing are not difficult to keep. Lately we took an egg from the same nest that the young birds came from; it is perfectly round, an inch in diameter, and looks as if it had been cut out of smooth white marble. The hole was made in the bank of the river, and was well lined with pellets of fish and insect-bones.

2. *Halcyon natalensis*.—One can scarcely imagine a more lovely little bird than this: it is scarcely three inches in length; in colour glossy blue, with purple reflections above; the breast and belly orange-red, with feet and bill of a delicate pink. This bird is not so often seen as the former species, owing to its more retiring disposition and its making the denser parts of the woods its haunt. Here it may be frequently found near some small stream or water-course, where it can easily get a plentiful supply of water-insects, which we think must be almost its sole food. A specimen we took to England was greatly admired.

3. *Alcedo semitorquata* (our blue kingfisher) is entirely of a deep blue, with the exception of the breast and belly, which are pale chestnut in the adult bird: young birds that we have taken were spotted on the breast. It is abundant throughout Natal, and may be seen flying rapidly up and down the rivers within a foot or two of the water, uttering its shrill but not unmusical cry. It lives entirely on fish, and never quits the bed of the stream. This

kingfisher makes its nest in the burrow of a rat or other rodent, usually several feet deep, and in a hard stony bank it is no easy matter to get at. We have often watched with pleasure the old birds catching fish for their young ones, who were perched upon a rock screaming lustily for food, both the male and female being equally assiduous in supplying their wants. We have often caught the young, but have not been able to rear them: they seem extremely delicate and averse to confinement.

4. The great kingfisher (*Ceryle maxima*) is the largest of the tribe found in South Africa, being fifteen inches and a half in length: all the upper parts, including the tail and wings, are bluish black, thickly spotted with white; head crested; breast and belly red, mottled with white and black; the bill and legs are black. This bird is by far the most noisy of all the kingfishers; when flying it keeps up an incessant loud chattering scream. It is strong on the wing, and occasionally flies very high. With its large bill it manages to swallow fish of a considerable size. It is rather sociable in its disposition, and three or four may often be seen in company. It is said to be migratory in the Cape Colony, but remains all the year with us. As yet we know nothing of its nidification.

*Crows.*—There are apparently only three varieties of the Corvidæ found in the whole of South Africa, all of which are to be seen in Natal.

The carrion or ring-necked crow (*Corvus albicollis*) frequents in large numbers the open country, but more particularly along the coast. It does not seem to be very gregarious, generally going in pairs, except when they are attracted by the scent of a dead ox or other carrion. This is a fine large bird, fully two feet long; unlike most of its tribe, it is not entirely black, having round its neck a broad snow-white ring, which gives it a very striking appearance. Although no doubt of great service as a scavenger, it sometimes proves mischievous among the farmer's stock: we have seen lambs and even full-grown sheep torn and mutilated by these crows; they also commit sad depredations in the poultry yard, devouring great quantities of eggs. One of these birds may often be observed flying out of gun-range with an egg in its bill, which it can carry for a long distance without breaking the shell. The ring-necked crow makes its nest on a ledge of some lofty precipice, in which it lays two or three large eggs, two inches in length,

green-spotted and speckled with brown. We took a young one from the nest and succeeded in rearing it: it became quite as tame as a jackdaw, flying loose about the place, and although the wild crows did their best to entice it away it would not leave us. This bird was not particular in its diet, and would eat anything that was given it. At night it roosted with the fowls, to some of which it showed considerable attachment; but it occasionally had furious battles with the cocks, always ending with the discomfiture of the fowl. We could not keep this interesting pet long, owing to its developing a propensity to kill chickens.

The cornland crow (*Corvus capensis*) takes the place of the rook in England, being similar to it both in habits and colour; but it is a larger bird, hardly less in size than the former species. It is gregarious, and when large flocks alight on a field of young corn they do much damage; but its chief food consists of grubs, locusts, and other insects. This crow is easily tamed, and we are told that it has been taught to speak as well as the English jackdaw or magpie. Mr. Layard says that it breeds in trees, making a large nest of sticks, and laying from three to five eggs of a light pink colour, spotted with dark-brown pink.

*Corvus scapulatus*.—This is another beautiful crow, rarer than the preceding species, and in colour black, except a broad patch between the shoulders, chest and belly, which is pure white. It is the same size as the cornland crow. It is not found in our neighbourhood, and we have only seen a few specimens up country, where we believe it is local. It is said to be the commonest crow in the western districts of the Cape Colony, where it makes its nest in trees, laying six eggs of a light blue, spotted with brown.

*Moles*. — The chrysochlore, or golden mole (*Chrysochloris capensis*). This little quadruped is perhaps the most interesting of the class to which it belongs. Its habits are similar to those of the common mole, forming the same beautiful under-ground galleries and raising mounds of earth above them. It is of a beautiful golden brown colour, reflecting a variety of tints of a brilliant metallic lustre; this is peculiar to the chrysochlore, which is the only quadruped that displays these changing hues. Another distinguishing feature of this animal is the peculiar formation of its front feet, the outer claws of which are quite out of proportion to the rest, being half an inch long, and proving a most serviceable tool for burrowing the earth. The chrysochlore grows to the length

of five inches: it seems to be quite deprived of the organs of vision, there being no appearance whatever of eyes, even when the animal is skinned. We have often been interested in watching the rapidity with which it would bury itself in the earth, even when placed upon hard ground. The natives, who use a quantity of animal substances as medicine, consider the flesh of this mole as a valuable addition to their stock. There are two other species of mole found in Natal, but we know very little about them.

R. B. & J. D. S. WOODWARD.

(To be continued.)

*On the Birds of New Zealand.* By T. H. POTTS, F.L.S.

(Continued from Zool. S. S. 4413.)

*More-pork* (*Athene Novæ-Zelandiæ*, *Gmel.*).—Some instances have been noticed where this useful bird has at intervals taken up its abode amidst men's dwellings. During the past two years the parsonage garden at Kaiapoi has afforded shelter to this industrious mouse-catcher: in another place a small niche in an outhouse was tenanted by a more-pork. Here, beneath the verandahs, we have known it prey on the moths that have been fluttering on the outside of the windows, attracted by the strong light within doors. We have the egg from the Westland Bush, taken from a hole in a tree; it is white, smooth, of a rounded rather than oval shape, measuring through the axis one inch and nearly six lines, with a breadth of one inch three lines. The weight of a more-pork is about five ounces and a quarter. It should be stated that castings described by Dr. Buller, in his 'History' (p. 20), as those of the owl, are castings of the kingfisher (*Halcyon vagans*), which were collected by the writer in Governor Bay, and placed by him in the Museum. Near the Ohungua river nests have been found with two and three eggs therein.

*Huia* (*Neomorpha Gouldi*, *Gray*).—Mr. J. D. Enys has been kind enough to forward some notes taken during a visit to Akitio. Two specimens obtained July 3, 1873, weighed—male 353 grains; female 306 grains. Three specimens, killed September 9th:—

	Total length.	Spread of wing, from tip to tip.	Bill.
No. 1, male ...	18 inches.	17·5 inches.	2·19 inches.
No. 2, „ ...	20 „	19·5 „	2·19 „
Female ...	19·75 „	20·5 „	3·69 „

Irides gray, darkest in the female; ovary not in a forward state; circumference of thigh, after skinning, three inches; muscles supporting the back of the head and neck very prominent. In one of the male specimens at least half the under tail-coverts was tipped with white. Eye-witnesses informed Mr. Enys that the male tears the surface of rotten logs; the female extracts the insects, which are shared between them. At any rate the male gets his share of his mate's labours. In life the wattle looks concave. Mr. Enys was reminded of the crow (*Glaucopis*) in some of their movements; sometimes four to six were found in company. One of the males killed on the 9th of September had not moulted; the tail was dirty and scrubbed, giving it a rusty look, which may account for the so-called "redtailed huia."

*Creepers* (*Acanthisitta chloris*, *Sparrm.*).—On a station near the Harper river, in this Province, a pair of these small birds made their nest in the skull of a horse. The average weight of these birds is about a quarter of an ounce, the turn of the scale in favour of the female.

*Yellow-head* (*Orthonyx ochrocephala*).—Average weight of specimens one ounce and a half.

*White-head* (*Certhiparus albicilla*, *Less.*; *Orthonyx albicillus*, *Gmel.*).—The writer procured several specimens of this creeper at Pakuratahi, at the foot of the Rimutaka range, Wellington. Closer observation induces the belief that this species may be separated from *O. ochrocephala*, in order to place it near to *Certhiparus Novæ-Zealandiæ*.

*Gerygone*.—Dr. Buller's idea that the *Gerygone sylvestris* is *G. frontata* is not concurred in by the writer. The new bird bears much more resemblance to *G. flaviventris*.

*Yellowbreasted Tit* (*Petroica macrocephala*, *Gmel.*).—The yellow-breasted tit often shows a seeming want of care in choosing its nesting place. A site is selected which perhaps may be admirably adapted for concealing the nest, yet oftentimes the foundation is laid where the structure is liable to be blown out by gusty winds or cast over, so that its contents are destroyed; several instances of such mischances have we seen. The beautifully-made home is probably entirely the work of the female. We have never seen the male actually place the materials, yet he does his share of labour in carefully feeding his mate, not only during the time of incubation, but also whilst the nest is being built; he carries the

insects he has collected to the close neighbourhood of the busy female, and calls her to the feast. The female commences sitting before her full number of eggs is laid, and when she *leaves*—not when she is driven from—her charge, feathers are carefully arranged above the eggs or young. Compared with some species, the young birds are fed for rather a long time in the nest. A pair this season built in the roof of a bedroom in Christchurch, but did not succeed in rearing any young ones. The male weighs not quite half an ounce, being slightly heavier than the female. *Note*.—Jan. 11, 1873. Nest on moss-covered stump, Milford Sound.

*Keropia crassirostris*, Gmel.—The average weight of thrushes of either sex may be called three ounces and a half.

*Flycatchers* (*Rhipidura*).—August 28th and 29th. At Ohinitahi, this spring, the writer had two *union* nests under observation almost from the foundation of the structures being fixed. In one case the black parent bird (*R. fuliginosa*) was distinguished with the white spot over each ear; in the second instance the dark bird had not any white spot. As these nests were being built simultaneously, season had nothing to do with the assumption of the white plumelets. The weight of *R. flabellifera* does not exceed a quarter of an ounce.

*Kokako*, *Orange-wattled Crow*, or *Wattle-bird* (*Glaucopsis cinerea*, Gmel.).—The representatives of the Corvidæ are to be met with on either side of Cook Strait. The Middle-Island species is the orange-wattled crow (*G. cinerea*): it is being driven away by the approach of the colonist, for as the coast-line of a large portion of New Zealand exhibited signs, or echoed the sounds of the work of the settler in his encroachments on the tangled wilderness of Nature, the kokako retired to the higher and more remote bushes of the interior. To give an instance: Banks Peninsula, so often cited by Dr. Finsch, where the crow once abounded, is now divided into sheep runs or dotted with dairy farms; the once-silent woods now resound with the blows of the felling-axe or the harsh grating of the saw-mill. It is not a matter for surprise that the wattle-bird is no longer to be found in its old haunts; it seeks shelter amongst the higher parts of the bushy gullies—a refuge at once precarious and temporary. It may be thought that the bird has attained a secluded habitat, but the condition of the forest is rapidly changing under the effects of clearings and constantly-recurring bush fires. There is not much doubt that the climate of the district has become

modified: at a certain period of the year weeks of drought prevail. The kokako, loving a moist temperature, will probably soon entirely forsake its ancient places of resort. These remarks on Banks Peninsula, as an habitat for arboreals, are more or less applicable to a very large extent of country on the eastern side of the Southern Alps.

Under favourable conditions the kokako may be found on the outskirts of the bush, in the open glades that fringe some of the larger rivers. The gentle, confident manners, the rich flute-like notes, the peculiar mode of progression even, cannot fail to draw the attention of the observer, albeit he may not be imbued with enthusiasm for gazing on the life that stirs in our woods. The ardent naturalist, who has the chance of knowing this bird, must learn to love it. In the earlier spring months we have watched it out on the open glade cropping various species of Gramineæ, Gnaphalia and Polypodia: often has its soft note attracted us to the bush, where it has been feeding on the leaves of Melicytus, Carpodetus, &c. As summer advances, ripening the clustering drupes and berries, the fruit of the Fuchsia and the Coriaria afford an abundant supply of a favourite food. We have found it engaged, seemingly, in a search for insects, prying amongst the hoary filaments of the drooping graybeard moss that decks the branches of so many trees in some of the gloomy alpine valleys. The long tarsi carry the body well above the damp mosses, when collecting its food on the ground; its mode of progression, by a series of leaps or bounds, may also tend to keep its plumage clear of humid plants. When really alarmed it leaps with great rapidity, covering a wide space of ground with each effort. Like the keropia, it seeks safety amidst the low undergrowth of the forest. The sexes appear to be united in close companionship. We have noticed a pair on some favourite fruit-bearing tree caressing each other with their beaks. A pair kept in confinement lived thus imprisoned for about two years, but when one died its mate only survived some few days.

In December, 1869, Donald H. Potts, one of the writer's sons, found a nest on the outstretched limb of a broad-leaf tree (*Griselinia littoralis*), a few feet above a creek. This was on the Havelock River. In January last, whilst exploring the bush that fringes Milford Sound, the writer was so fortunate as to discover five nests, at heights varying from ten to seventeen feet above the ground.

The first specimen we found placed on the extended limb of a totara (*Podocarpus*) that overhung a deep, ferny gully. The nest had been built on the remains of an old structure, and the foundation, which was quite two feet across, made of sticks and sprays firmly interlaced, supported a basin-shaped nest formed of twigs and moss (*Sphagnum*), smoothly lined with leaves of soft grass. From wall to wall outside the measurement was found to be sixteen inches; diameter of the cavity eight inches, with a depth of 3.5 inches. The parent bird on the nest allowing a very close approach, was found to be covering two nestlings as yet unable to see. They were partially clothed with slate-coloured down, which, on the cranium, stood up like a broad crest, or rather crown; the neck and under parts were quite bare; beaks flesh-colour, with a greenish tinge about the point of the upper mandible; rictal membranes pale greenish, changing to blue; wattles rosy pink, like an infant's hand; legs and feet slatish anteriorly, dull flesh-colour behind; claws dull white. They differed somewhat in size; both were very plump, being abundantly fed with the berries of the tutu (*Coriaria*). The old bird suffered a close examination of its home and its inmates without uttering any alarm cry or showing any signs of defending its young, thus differing much from the habit of *Keropia*; yet there was not that exhibition of utter helplessness which some birds—as for instance *Hymenolaimus*—manifest under similar circumstances. The other nests were found in damp situations (one with a broken egg) in a small patch of bush at Freshwater Basin, close by the Lady Bowen Waterfall. From observation we found that the young are left at intervals during the day for a considerable time. A friend sent two eggs from a nest found near the Paringa river, Westland: they are of a warm stone-colour, with purplish and brown spots; ovo-conical; in length one inch seven lines; in breadth one inch one line: they bear much resemblance to the eggs of some species of terns in colour and marks. We are inclined to believe that eggs of this bird are often destroyed by the long-tailed cuckoo (*Eudynamis tahitiensis*). The weight of the female crow is ten ounces and a quarter, whilst that of the male is found to average from nine and a half to ten ounces. The writer found that in the Wairarapa the *Glaucopsis Wilsoni* is sometimes familiarly known as “the blue-gills.” It is said that *G. cinerea* has been found in the North Island.

*Platycercus*.—We have a beautiful specimen of the nest of *P. Novæ-Zelandiæ*, cup-shaped, built entirely of feathers, moss, and down from the tree-fern (*Dicksonia squarrosa*). A correspondent has communicated the following abnormal conditions of plumage in specimens of this genus:—" *P. Novæ-Zelandiæ*. Plumage yellow; also a specimen with blue plumage, forehead and top of head dirty white, without any mark or spot on each side the rump. *P. auriceps*. A specimen with yellow plumage."

*Kaka* (*Nestor meridionalis*, *Gmel.*).—Some eggs of this parrot in the collection of the writer differ from the usual type, their surfaces being very coarsely granulated. The nest contained five eggs, and was taken from the bush near Invercargill, South Otago. A form of *Nestor* not yet described has been found near Cass River, in this province. The dead bird was found in bad condition; it had the tail-feathers beautifully coloured with vermilion, without bars, the shafts much produced into hair-like points; the wing feathers with inner webs of delicate vermilion toning down to yellowish. *Kakas*, male and female, weigh from one pound two ounces to one pound five ounces.

*Longtailed Cuckoo* (*Eudynamis tahitiensis*, *Gmel.*).—In December, 1872, two instances came under the writer's notice of this bird being reared in gardens in Christchurch; somewhat later Donald Potts saw one being fed in the Irishman scrub (*Discaria toumatou*), close to the River Potts; in each of these cases the foster-parents were gray warblers (*Gerygone flaviventris*). The writer differs entirely from Dr. Buller in attributing compassionate philornithic feelings to the foster-parent; he looks on the *Gerygone* as a dupe simply. In the paper on the crow (*Glaucopis*)—"History of the Birds of New Zealand," p. 154—we may again find something like a belief on the part of Dr. Buller that a philornithic spirit prompts the yellow-head to feed and tend the offspring of the crow. Through the 'Ibis,' the writer tried to obtain some information about the egg of *Eudynamis*, but without success; he was referred to the two eggs labelled "koekoe," from the Buller collection. This bird abounds on the west coast of this island, and the Maoris say "it comes with the mosquitos." Crane-flies form a favourite portion of its food supply. The longtailed cuckoo weighs four ounces and three-quarters.

*Whistler* (*Chrysococcyx lucidus*, *Gmel.*).—Having long since taken much interest in bird-notes, many observations have been

made on those of the whistler; yet repeated attempts have failed to discover any guide why the number of its notes should so greatly vary; whether the bird's call is affected by the state of the atmosphere, temperature, the force of the wind, or the quarter whence it blows. At all hours it may be heard in its season, but at night the call seems most sustained, both as regards the distinct notes or whistles, and the remarkable song or flourish with which it often ends the performance. From some notes, taken October 25th to November 10th, the lowest and highest number of notes were:—

11.30 P.M. to 1 A.M. . . . .	14 to 34	4.30 P.M. . . . .	11 to 35
3.45 A.M. . . . .	18 „ 41	6 P.M. . . . .	12 „ 44
4.45 „ . . . . .	15 „ 24	9 „ . . . . .	18 „ 68
6.45 „ . . . . .	13 „ 25	10.5 „ . . . . .	17 „ 64
11.45 „ to 0.20 P.M. . . . .	3 „ 42	11 „ . . . . .	25 „ 107

The notes do not include the terminal song or flourish.

October 8, 1872. Whistler heard for the first time.

October 6, 1873. Just heard the whistler's call: this is early, as the spring is a late one. Their route on arrival seems to be from west to east, or north-west to south-east.

In the early morning the call of the cuckoo is certainly more plaintive in tone than at other times. This call is delivered without that evident labour which accompanies the outpourings of some species of birds. Whilst performing it sits rather low on its perch, the head is slightly raised, the bill pointing rather upwards, the head is slowly moved from side to side.

November 4. Female whistler killed by dashing against the plate-glass windows: irides liver-brown, inclining to reddish brown; tarsus and toes slaty blackish, beneath dirty flesh; ovaries not in an advanced state.

November 11.—Another female whistler suffered a similar fate.

November 12.—Whistlers feeding on the moths that are busy about the ngaio trees (*Myoporum lætum*); in picking off the moths the gape is opened very wide. Whilst feeding, a few low, brief notes are uttered.

Have seen this cuckoo hotly pursued by the black fantail (*R. fuliginosa*). When alarmed its call sounds like “peewau, peewau.”

*Pigeon* (*Carpophaga Novæ-Zelandiæ*, *Gmel.*).—Perhaps few birds show more art in the construction of their homes than does

the pigeon in the arrangement of the slender twigs which form the well-poised platform on which it rears its young. The slight fabric, which at first glance appears of a rude, careless make, has its materials so nicely adjusted as to bear with safety the weight of its heavy builders. It may be said to resemble somewhat the hollow of the human hand. In the slight depression of the platform the egg, or young, lies undisturbed by the swaying caused by the passing wind. Last January, in Milford Sound, the writer obtained several nests, in one of which was a young one a few days old.

January 9. Nest near the Cle dau River, in a sapling miro (*Podocarpus*), about eighteen feet above the ground; it contained one young bird sparsely covered with brownish yellow down, which was longest over the neck and breast; abdomen bare; bill dull flesh, inclining to slaty; round the eye bare; yellowish spot on upper mandible; legs, feet and claws leaden to flesh-colour. On the nest, with the young bird, there yet remained some fragments of egg-shell and pieces of dung. The spaces and openings of the latticed nest befit the dirty habits of the pigeon; as the excrement dries, probably most of it disappears through the nest.

The writer has a beautiful specimen of the nest from the Little River Bush, Banks Peninsula; it was built on a totara (*Podocarpus totara*), on a branch covered with *Loranthus micranthus*, and contained one fresh egg (April 14th). The egg, of pure and glossy whiteness, is of a perfect oval form, measuring in length one inch ten lines, with a breadth of one inch four lines. A pigeon weighs one pound ten ounces; sometimes this is rather exceeded. In July and August this bird feeds on the *Polypodium australe*.

*Plover* (*Charadrius obscurus*, *Gmel.*).—In October last Donald Potts found a nest which contained four eggs; three of these were those of the plover, the fourth being that of the common tern (*S. antarctica*).

*Crookbill* (*Anarhynchus frontalis*, *Quoy*).—In the 'Ibis' for January, 1873, also in Dr. Buller's book (p. 219), appear statements that the pectoral band is less conspicuous on the left than on the right side of the crookbill. The fact is that the shape of the pectoral band is not very regular, and that the black feathers may be found to be most conspicuous either on the left or right side in different individuals, as any one can ascertain who looks through a series of specimens when he may not have the opportunity of noticing living birds.

*Masked Plover* (*Thinornis Novæ-Zelandiæ, Gray*).—In the summer months this gay-looking plover affects sandy beaches of the sea-shore. Near to the outfall of a river seems a favourite place of resort; there *débris* carried down the stream, and cast on the bank by the opposing tides, affords shelter to numerous insects on which the masked plover delights to feed. To those who are acquainted with our *Charadriæ*, the *Thinornis* must seem to have much in its ways that is common to *C. bicinctus*,—as, for instance, there is a marked similarity in the style of flight, in the notes and calls; the clicking alarm-cry whilst on the wing is common to both birds. The masked plover is said to be rare. In the Catalogue of the New Zealand exhibits in the Vienna Exhibition, 1873, this bird is marked “very rare.” It is not unlikely that the idea of its reputed rarity has arisen rather from the lack of close observation than from the scarcity of the species. Wary, active and bold, it watches every movement of the intruder on its feeding-ground with attention; it evinces uneasiness by flying in wide circuits at no great height. On alighting it often runs a few yards, covering the ground with rapidity. Advantage is taken of any high ground for a look-out. When employed in watching the head is frequently moved up and down; when all appears quiet the search for food is resumed amongst the drift-wood, sticks, and sun-dried *Algæ* that mark the limits of the highest tide. “*Tuturautu*,” the name given to it by the natives, is expressive of the call-note; perhaps an idea of its sound could scarcely be better rendered. The alarm-cry is like “click, click,” repeated rather fast three or four times; after a brief pause the warning is again sounded. The male has a bright orange-coloured bill, which sets off its handsome plumage to advantage; the female has its colours distributed in much the same way as her mate, but these are far less conspicuous in tone. Dull, smudgy brown, in unobtrusive tints, lends security to the brooding bird.

*Note*.—December 31. Watched three pairs near the mouth of the Waikawa River, Otago. A single pair was first seen, but their alarm-note brought the other couples from some distance along shore; these latter, after a brief but wary inspection, departed. From the screen formed by the crest of a sand-dune the birds were watched; they were most probably breeding. At the slightest change of position on the part of the observer both plovers left off their food-search, and made a restless circuit that brought the

intruder into full view: both birds showed boldness, the female alighting within three yards' distance of the writer, near enough for the colour of the irides to be distinguished. It is probable that the female has been described under the name of T. Rossi.

*Ortygometra affinis*, Gray.—Weights one ounce and a quarter.

*Ortygometra tabuensis*, Gmel.—We have the egg of this widely-distributed rail from a salt-marsh near Invercargill. It is rather a long-oval in shape; measures one inch nearly four lines through the axis, the breadth being about ten lines; colour olivaceous-brown.

*Kelp-hen or Blackwood-hen* (*Ocydromus fuscus*, *Du Bus*).—It abounds in the many inlets and sounds of the south-west coast of this island. The only place where we noticed that it seemed shy was in Milford Sound. As soon as the tide begins to recede these dusky rails come out on the shore to feed amongst the kelp. In January last we procured, without difficulty, a number of specimens of either sex, both in the young and adult state. In the living state we observed that the bill was pink at the base, pale brown towards the tip; irides chestnut-red; legs and feet red; claws brown. The young have the legs as red as the adult bird: irides dull yellowish; bill dark colour.

*Gallinago pusilla*.—A specimen of this snipe has been recently obtained on The Snares.

*Eudyptes*.—Mr. Morton has informed the writer of the occurrence of a black penguin corresponding in size with *Eudyptes pachyrynchus*. It was captured on The Snares.

*White Nelly* (*Ossifraga alba*).—Off Centre Island, Foveaux Straits, a fine specimen of the white Nelly was captured by Mr. Enys on January 3rd: it was feeding on the refuse from the vessel, in company with several specimens of the common Nelly. Plumage white, mottled very sparingly throughout with single brownish gray feathers; bill pale greenish; sutures flesh-colour, yellow at the tip; legs and feet slate-gray. Entire length thirty-four inches; spread of wings across the body seventy-seven and a half inches; wing from flexure twenty inches six lines; tarsus three inches six lines; middle toe and claw five inches four lines; outer toe five inches; spread of web seven inches; bill three inches; lower mandible three inches; beak one inch; gape to centre of eye one inch; height of beak one inch. The day before the wind had been blowing hard from the south. On the 15th of January, in Cook

Strait, we observed another specimen: it had been blowing a furious gale on the day before.

*Molly-mawk* (*Diomedea melanophrys*, *Boie*).—An egg of this sea-fowl, from the Auckland Isles, is white, with a few small rusty marks; ovoi-conical in form. It measures four inches four lines in length, with a breadth of two inches ten lines.

*Lestris catarractes*, Q. and G.—An egg of this species, brought by Mr. H. Travers from the Chatham Isles, is ovoi-conical in form; the colour is olivaceous-brown, blotched and dotted with dark brown: it measures three inches in length, with a breadth of two inches one line.

*Large Gull* (*Larus dominicanus*, *Licht.*).—In certain localities the habits of our large gull seem so peculiar as to deserve some notice. About the Sounds it is apparently far less gregarious than it is usually found to be on our eastern shores. Has the custom of flocking together been abandoned, or is it yet unacquired? Fish is as abundant on the western side as it is here, so that any difficulty in the food supply does not seem to be the cause of different habits. It breeds solitarily on little islets, stumps or roots of stranded trees. The nests are large, substantial structures, showing a degree of labour and care in their construction which is not matched by the birds on our side of the island. Some found by the writer, in Milford Sound, were large nests formed of a vast variety of materials, and so solidly built that they were brought away without the least damage. The young keep to the nest for some time, lying on the broad walls basking in the sun; from the castings we found they were fed on young mussels, &c. These gulls prey on the young of other birds,—such, for instance, as those of the teal,—which are swallowed at a gulp.

*Sterna alba*, Potts.—The white tern seen by the writer on the Ashburton, and described by him in the 'Transactions of the New Zealand Institute' (vol. iii.), is quietly placed by Dr. Buller with *S. nereis*, to which he gives the name of the "little white tern." This fine white tern was seen on the Waitangi River by the Hon. G. Buckley and others. Last month (November 20) a pair were seen flying up and down the course of that great river. It is satisfactory to be able to record a second notice of the occurrence of this bird in the breeding season.

T. II. POTTS.

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*Ornithological Notes from North Lincolnshire.*

By JOHN CORDEAUX, Esq.

(Continued from S. S. 4366).

FEBRUARY, MARCH, APRIL, 1875.

*Dipper.*—I recently purchased a dipper shot during the last autumn on the Withern trout-stream near Alford: this is only the second occurrence which has come under my notice in North-East Lincolnshire. This bird belonged to the English type, having the chestnut-brown band on the breast.

*Marsh Harrier.*—March 8. In the marshes this morning there was a large hawk beating over the ground in a systematic manner. On horseback I had a very good view of it, and have little doubt it was the now rare marsh harrier. The hawk flew about three feet above the ground, and very much like a gannet—that is, three or four quick beats of the wing and then a long glide. The wings were long and pointed, colour brown, with the tail light-coloured, and two very conspicuous bluish gray patches on the wings. I could not get a clear view of the head, which was concealed by the wings and shoulders.

*Wood Pigeon.*—March 9. Breeding-note of wood pigeon first heard. Immense flocks now resort daily to the clover-fields, feeding on the young plants and doing considerable damage.

*Blackheaded Bunting.*—March 9. Have returned in pairs to all their usual nesting-haunts.

*Twite.*—March 15. A small flock of twites in the marsh. Examples obtained have almost assumed the scarlet rump, if indeed they had ever lost it. Dr. Saxby, in his 'Birds of Shetland' (p. 108), says:—"In winter, as well as in summer, adult males have red upon the lower part of the back, but the winter colour is by far the less brilliant." I have this year seen pairs of twites in the marshes up to the middle of April, yet I have never found them actually nesting with us.

*Starling.*—Enormous flocks throughout March on the pastures: portions of the grass-lands are completely riddled by their borings,—not all over the field, but in patches, usually the lowest and wettest places. These borings are often so close as to be all but confluent, and I have covered twenty with the palm of my hand.

*Pied Wagtail*.—March 15. The spring migration has commenced. As a rule, they have assumed the full summer dress.

*Lapwing*.—March 15. Spring note first heard.

*Sclavonian Grebe*.—March 15. One of the coastguard brought me a grebe of this species, which was captured alive in a drain in the Stallinborough marshes. Dissection showed it a young male; the stomach was crammed with the husks of the common freshwater shrimp and a few feathers.

*Golden Plover*.—March 23. Spring note. A flock to-day were in full summer dress.

*Ringed Plover*.—March 23. Spring note first heard.

*Great Blackbacked Gull*.—March 24. A magnificent pair of old birds in full plumage at their usual station near the creek end, and with them the three young birds of the previous summer. Young and old, I have observed, as a rule, keep much together in family parties during the year, till the following nesting season.

*Lapwing*.—March 31. Many bands of lapwings, evidently in full migratory flight, crossed these marshes this morning from south to north.

*Hooded Crow*.—April 10. Left North Lincolnshire to a bird about this time. I did not see any after this day. Wind north and north-east.

*Wheatear*.—April 12. A pair seen. Are ten days beyond their average time of arrival: we usually have great numbers during April; this season I have only seen three. In late backward seasons our spring migratories rarely tarry long with us, or are rarely seen, probably proceeding to their summer breeding haunts without any unnecessary delay.

*Greenfinch*.—April 13. Very large flocks on some of the newly-sown fields; they will keep together till they leave us, towards the end of the month.

*Chiffchaff Warbler*.—April 15. First heard. Wind north-east; cold.

*Ray's Wagtail*.—April 15. First seen.

*Chimney Swallow*.—April 16. One seen; numerous on the 19th.

*Sand Martin and Willow Warbler*.—April 19. First appearance.

*Teal*.—April 19. When fishing this afternoon, a pair of small teal rose almost under my feet. I had a good view of them; they were not our common teal—probably a pair of garganeys.

*Whimbrel*.—April 21. First seen on their spring migration.

*Cuckoo.*—April 24.

*Common Whitethroat.*—April 29.

I first heard and saw the tree pipit on May 2nd; whinchat, May 3rd; a single fieldfare the same day.

It is a very backward spring in this district, wind generally from north to north-east or east, temperature very variable, rain-fall scarcely any—only a few slight showers since the end of February.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,  
May 4, 1875.

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*Ornithological Notes from Devonshire, Cornwall, &c.*

By JOHN GATCOMBE, Esq.

(Continued from S. S. 4451.)

APRIL, 1875.

1st. A great number of lesser blackbacked gulls in our harbours, nearly all in full breeding dress.

2nd. Was shown a wheatear which had alighted on a fishing-boat five miles from land, in an exhausted state, but soon after died. It was in company with two others, which fell into the water before reaching the boat and were drowned. Weather fine at the time.

8th. Wind north-east, exceedingly cold. Some sand martins on the coast, and a few swallows observed to arrive from seaward.

12th. The first warm day after long-continued cold winds. Chiff-chaffs singing loudly, and the sheltered sunny lanes swarming with blow-flies. Observed the first small white butterfly.

13th. Willow wrens singing. Again a very cold east wind.

14th. There were several swallows flying about to-day, and a male common redstart was captured at Devonport. One of our birdstuffers had brought to him a wryneck which had flown against the Eddystone Lighthouse.

15th. The lesser blackbacked gulls are daily becoming more plentiful. This morning there were upwards of fifty resting together on the West Mud, and still greater numbers flying about the harbour: they appear to betake themselves to their breeding stations later than the herring gulls.

16th. A grasshopper warbler was killed to-day by a boy with a catapult. This species is uncommon with us.

17th. Visited the breeding place of the herring gulls at Wembury, where I saw about two hundred standing and sitting about the cliffs, mostly in pairs, with as many more in a large flock resting on the water below. They were rather clamorous and tame, but not so much so as when they have eggs and young. A pair of ravens were breeding near the spot. Some greater and lesser spotted woodpeckers have been lately obtained in the neighbourhood of Plymouth: they appear more plentiful in spring and autumn than at any other time.

19th. Observed some whitethroats, and on the 21st a fine hoopoe was killed on the Cornish side of the river Tamar, I believe near St. Germans. Its stomach contained several whitish grubs.

23rd. A golden plover, in almost perfect breeding dress was picked up dead under the telegraph-wires of the South Devon Railway. I may here mention that a friend of mine saw a kestrel a few days since sitting on a telegraph-wire, but which, strange to say, did not attempt to fly off, although the train passed by it within a few yards. Common buzzards, sparrowhawks, and white and brown owls are constantly brought to our birdstuffers, I am sorry to say, with their legs broken and lacerated in a most shocking manner, having been caught in common rat-gins, and perhaps left struggling and suffering for days together before the traps are examined. Indeed it is quite pitiable to see how the legs are broken and twisted, hanging only by the sinews, in their desperate and painful efforts to escape.

24th. Heard several tree pipits, and on the 29th a few pied flycatchers were seen.

30th. At half-past seven in the evening I observed a fine glaucous gull flying from the harbour into the Sound. It was in that exceedingly light brown, "washed-out" looking, plumage which appears quite white at a little distance, before the light bluish gray of maturity is assumed on the back and wing-coverts. I do not remember having seen this species on our coasts so late in the season before.

JOHN GATCOMBE.

8, Lower Durnford Street, Stonehouse, Plymouth.

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**Lions in Algeria.**—M. Hippolyte Bétouille, the lion killer, writing from Souak-Ahras, in Algeria, to the 'Chasse Illustré,' says that MM. Gérard, Bombonnel, and others, have given Europeans quite a false idea of the habits and customs of lions and other wild animals in Algeria. He has resided in that country for the last ten years, and during the greater portion of that time has been engaged in hunting wild and ferocious beasts under the guidance of two celebrated native huntsmen named Hamed-ben-Amar and Bel-Kassem-ben-Salah, both of whom are covered with wounds and scars. The former has slain more than a hundred lions and panthers, and the latter more than sixty. M. Bétouille, according to his own statement, has killed lions and panthers both by day and night, with and without a moon, alone and in the company of Europeans, and he has come to the conclusion that these animals only attack human beings when they are wounded, or when the female has young ones, in which case they inhabit such secluded portions of the forest that travellers need have little fear of meeting them. This opinion is shared by Amar and Bel-Kassem. M. Bétouille killed a large lion on the 3rd of January, and presented it to General Kebillard, commander of the sub-division. The animal was killed at night time. There was no moon, and it was traced by its roar. Lions and panthers in Algeria only constitute a nuisance on account of their destructive propensities. M. Bétouille tells us that Amar, Bel-Kassem and himself have ascertained by experience that every full-grown lion costs the inhabitants of the neighbourhood in which he resides between £48 and £60 a-year: he eats or kills a large beast—such, for example, as an ox—every five days, and a sheep or a goat every day. People may travel in Algeria without fear of being attacked by lions or panthers. The animal that they have to dread most is, in M. Bétouille's opinion, the Bedouin.—'Land and Water,' March 13, 1875.

[The panther is now generally banished from the list of quadrupeds. M. Bétouille refers to the leopard without doubt.—*Edward Newman.*]

**Stoat near Ringwood.**—An unusual number of these high-smelling creatures seem to have been met with in this neighbourhood during the past winter (1874–1875), all in the white or partly white dress. A bird-stuffer, whom I know, received five at one time, and I saw three or four lying together near the house of a gamekeeper, besides several others gibbeted upon the bushes at no great distance. Has their occurrence been observed in other localities? Has any reader of the 'Zoologist' ever seen instance of the so-called fascination which this creature is said to have the power of exercising over its victims? and does the stoat always kill them by sucking their blood? I am led to make these enquiries, as I believe stoats possess the power of fascinating to a certain extent, and because I have seen the opinion of their sucking blood called in question.—*G. B. Corbin.*

**Moles and Mole-catching.**—In a tract of meadow land in Norfolk, which lies below the level of a tidal river, and is, therefore, preserved from being submerged by artificial embankments, the mole is not infrequent, although he is regarded by the occupiers with great disfavour. In addition to his ordinary sin of making the grass land difficult to mow, he has an ugly trick of boring into the river-walls; and, by loosening the sods which hold these walls together, he imperils the walls themselves. Mole-catchers are, therefore, in great request, and a few minutes spent in company with one have taught me a lesson on the mole's history which was quite new to me. March is the breeding month of the mole; and in preparation for the appearance of the young ones, stores of fresh meat in the shape of worms have been laid up under hills, larger than the ordinary mole-hills, but in the open marsh, which an experienced eye readily recognises. The mole-catcher (in whose company I found myself accidentally) is employed to poison moles, and the food in which he puts his poison is the common earthworm. Sooner than spend his time in digging for those on the upland, he had come down to the marsh to rob the mole's larders, and he hit on these with the sagacity of a terrier sniffing at a rabbit's burrow, and did not open a hill in vain when I was with him. He chose the largest hills, which were on the highest spots on the marsh, and opening one in my presence, he laid bare a round cavity, the sides of which were beaten hard by the mole so as to prevent the worms from attempting to pierce their way out. Inside this there was nearly a quart of fine worms, quite free from any admixture of soil, each worm apparently tied up in a coil or knot, yet all alive: upon being dragged out of the place in which they had been stored, the worms began to wriggle away, but the mole-catcher put them into the box he carried, and took away his prize. Is this habit of the mole generally known among naturalists? It seems to argue a reflective faculty, great as in the beaver, that the mole should prepare a prison in which worms can be kept alive. The nest of young ones is never placed out on the flat, but made in some dry bank where worms would perish. The mother stores the worms where they remain alive and wholesome food, and fetches them thence to the young as they require them.—*'Field' of March 13, 1875, but unattested by a name.*

[The value of such records depends on their being thoroughly well authenticated. I think no such habit was noticed by Le Court in the experiments which he instituted into the life-history of the mole, as recorded by Geoffroy St. Hilaire, and it seems unlikely that such a strange propensity should have escaped the notice of that most diligent and accurate observer. The mole is one of the commonest animals in this country, but, from its subterranean habits, it seems to have escaped the notice of all except professional mole-catchers.—*Edward Newman.*]

**Camels reared in the United States.**—“In a farm in the State of Nevada (U.S.), near the river Larson, there is a troop of twenty-six camels, all of

which, with the exception of two, have been reared there. A few years ago nine or ten of these animals were imported into America, but only two survived; and these two, being fortunately a male and female, have produced twenty-four, all of which are now alive. The soil is sandy and sterile in the extreme, and the animals thrive well, although their only food consists of the prickly leaves of a small shrub, and bitter herbs which cattle will not touch. They are employed to carry merchandise, and perform considerable journeys across a very barren country."

[In quoting this passage from a weekly paper, I am tempted to make the inquiry, whether the camel is known in a wild state in any part of the world? I do not mean as an absolutely aboriginal animal, but is it anywhere—like our Highland stots at Chillingham or elsewhere—able in any instance, or in any country, to shift for itself and procure a living without the continued assistance and co-operation of man? A statement to that purport for some time obtained circulation and credence, but I think has not been repeated for many years.—*Edward Newman.*]

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**Migration of Birds.**—Referring to an article in your last on the migration of birds, by Mr. John Colebrooke, it may interest your readers to know that the destination of thousands of them is the west coast of Ireland. I have for many years observed that large flocks of blackbirds, thrushes, and various other birds, arrive in Achill about the first week in November, with the woodcocks, and remain until March. At this moment my plantations are full of them. It is curious to see the different kinds of birds select different places to lodge at night—blackbirds in one plantation, and thrushes in another, starlings in a third, and so on, with green linnets, gray ditto, chaffinches, &c. The goldencrested wren is also a winter visitor, and on one occasion I saw a corn crane in February. I am sorry to say the latter met with an accident, and was found dead. It was in very good condition, and I had it stuffed. We have had no frost or snow to speak of this year. The latter did not lie during any one day. We attribute the mildness of the climate to the influence of the Gulf-Stream on the coast.—*William Pike; Glendosory, Achill Sound.*—'Land and Water,' March 13, 1875.

[Mr. Pike would have added to the value of this interesting communication had he stated the supposed inducement of these bird-visits to Achill Sound. Is there more food or warmth than farther on the mainland of Ireland? It is extremely desirable that every possible light should be thrown on the question.—*Edward Newman.*]

**Spring Migration at the Land's End District.**—We have a very late season this year with our migratory friends; but the chiffchaff's appearance coincides exactly with last year—*viz.*, the 6th of April. I only speak from

my own cursory observations; others might have observed or heard the birds earlier.

	1875.	1874.
Chiffchaff - - - - -	April 6.	April 6.
Blackcap - - - - -	„ 23.	„ 6.
Willow Wren - - - - -	„ 23.	„ 21.
Swallow - - - - -	„ 19.	„ 11.
Cuckoo - - - - -	„ 19.	
Sedge Warbler - - - - -	Non-appearance.	„ 21.
Whitethroat - - - - -	„	„ 27.

—*E. H. Rodd; Penzance, April 23, 1875.*

**Spring Migrants.**—Nightingales were first heard on the 30th of March, at St. Lawrence, and sang throughout the greater part of the night: the day had been fine and mild, thermometer  $50^{\circ}$  at 9 A.M. This is the earliest date of arrival I ever remember, though Dr. G. Macdonald, in a letter to the 'Times,' says that he saw a nightingale in the woods near Brecon on the 24th of March. I was inclined to doubt it, thinking that Dr. Macdonald might have mistaken the bird, as he does not say that he *heard* the nightingale, and they usually rest awhile on the south and south-east coasts before pairing and proceeding inland. To reach Brecon, they would have to pass through Sussex, Hants, Wiltshire, Gloucester, and Monmouth, a distance of some two hundred miles, without a halt by the way, or they must have been heard of. However, that they have appeared some days earlier than usual is certain. The chiffchaff was late in arriving in this neighbourhood, not having been observed till the 6th of April, when I saw one flitting about the shrubs skirting the Bonchurch pond. Two swallows were seen on the 16th of April in rapid flight, thermometer  $48^{\circ}$ , wind east, and three more were observed on the 18th; they are a week or so later than usual. The wheatear and cuckoo are the only other birds that I have heard of, but I do not know the exact dates of their occurrence. That Macgillivray erred in saying that the cuckoo "visits us in the *end* of April," there can be no doubt. The chiffchaff and wheatear are the joint harbingers of spring, arriving together—like the cuckoo and wryneck, but some three weeks earlier.—*Henry Hadfield; Ventnor, Isle of Wight, April 22, 1875.*

**Additions to the Avifauna of the Færoe Islands.**—I am indebted to my kind friend Herr Sysselmand H. C. Müller, of Thorshavn, for notice of the occurrence of the following species, not hitherto included in the published lists of birds observed in these islands. In the Zoological Museum of Copenhagen there is an example of *Coracias garrula*, *Linnaeus*, obtained in Færoe on the 22nd of July, 1836, by His Excellency Governor von Tellisch. On the 4th of August, 1873, a female specimen of *Puffinus fuliginosus*, *Strickland*, was captured four English miles east of the island of Nolsoe.—*H. W. Feilden.*

**Montagu's Harrier in Hampshire.**—Several years ago a gentleman sent me a hawk, a splendid little fellow with its pale dove-like back, and prettily marked belly and thighs, but at that time I was totally ignorant of its name or value, but I have since discovered that it was a small male Montagu's harrier. It was obtained on a heath near here, close to the borders of Dorset, where a pair had built the previous summer. One day in May, 1871, I was in the meadows searching for larvæ of the scarlet tiger, not far from the river, when I saw a large hawk flying towards me, and it settled upon an elevation at no great distance,—so near, in fact, that I could see its plumage very distinctly. Next day I was in the meadows again, looking out for the stranger, which I had supposed was a hen harrier; then and for several consecutive days its presence was to me a source of pleasure. I then lost sight of it for a week or ten days, when a gamekeeper brought a bird which he had trapped whilst in the act of eating a leveret, which I have every reason to suppose was the specimen I had previously observed, and it proved to be a female of Montagu's harrier. Since then I have seen several others, especially males, at the birdstuffers' in neighbouring towns, and during the spring of 1874 I was highly gratified at seeing two, if not three pairs, in the New Forest, where the species undoubtedly breed most seasons, although I have never heard of the eggs being found; but I have reason to believe that a nest of eggs which a dealer bought of a gipsy a season or two ago as that of the hen harrier, was referable to this closely allied species: in fact, I may speak positively of young birds having been taken from some of the moors a few seasons ago. Many an hour have I spent upon the extensive heaths and moors of the forest searching for the nest, and have on several occasions seen one or more of the birds, and the season of 1874 was an exceptional one, as the following facts will prove:—One evening, early in May, I was in the forest on the look out for "anything," when I chanced to see a pair of hawks, which, although at a considerable distance, I could easily see were harriers of some species, from the pale colour of the male. I remained quietly for a long time hid amongst some furze bushes, and the birds at last came near enough for me to see that the male at least was a Montagu, and I have not the least doubt the larger and darker bird was his mate. I was naturally very anxious, if possible, to obtain an indication of the site of their nest, or probable nesting-place, by watching the movements of the birds; in this, however, I was disappointed. The flight of the bird is very graceful, almost reminding one of the swallow, so light and easy does it fly, and seems to have none of those dashing movements similar to the peregrine; in fact, we well know that such an impetuosity is an impossibility with the harrier, for its wings are very long, but its weight is altogether small for its size,—hence its light and aerial motions. In its manner of hunting it much resembles what I have read of the habits of the hen

harrier, beating the heaths in regular lines, and, as far as I observed, never settles upon trees, but often upon any mound or elevation, and whilst hunting, flies just over the tops of the heather, with an occasional rise into the air as if chasing some insect, and in its whole demeanour it seems to be less fearless of man than do many others of the birds of prey. I visited the same locality several evenings, and occasionally saw two if not three pairs of birds, often a long way off, and although I was quite unsuccessful in detecting their nest, I had hoped they were breeding somewhere near, and that their life would be spared, but in this I was most grievously deceived, for about the middle of May a gamekeeper trapped two pairs of them, and I did not see the others afterwards,—possibly they met with a similar fate in some other direction. I had, however, the satisfaction of inspecting as well as dissecting one of the pairs, which were two beautiful birds. At first sight the female appeared to be much the larger of the two, but the disparity was not so much in measurement as in weight and general appearance. The spread of wing of each was three feet seven inches, and length of the tail nine inches. The female was rather superior in length from head to tail, measuring eighteen inches and a half, whilst the male was only half an inch less. In bulk of body, however, the two birds materially differed, for whilst the male weighed but nine and a half ounces, his “better half” weighed just over fourteen ounces. The gamekeeper told me that they were very destructive to young rabbits and young woodcocks, and that he had picked up eight or ten of the latter which had been killed and partly eaten by the pair the same morning as he trapped them,—in fact, that one of the woodcocks had been used as a bait for the trap in which they were caught: such information, however, could not have been altogether reliable; he might have found the remains of the woodcocks, but the pair of harriers I dissected had decidedly not breakfasted upon them, as there was *nothing* in the stomach of the male, and but very little—apparently only the remains of a beetle—in that of the female. The female was either laying or about to lay at the time of her capture, as I took an almost mature egg from her; and as I could find no other in a further dissection, I supposed she had laid two or three before, and that this would have been the last, yet I have not heard that a nest was anywhere found last season. The man who caught these birds considered they were valuable *harriers*, and took a pair of them to a dealer, with the expectation of getting a good round sum in return, but the dealer told him they were ash-coloured *falcons*, and consequently worth but very little, and so he obtained them for a mere trifle, thus turning to account—in not altogether a creditable manner—the different names which this species has had applied to it. I am well aware of the marked variation which often exists between the Falconidæ in their various stages of growth from nestlings to maturity, so I would not speak positively of the occurrence of the variety of this species—the *Circus ater* of

Vieillot—in this neighbourhood, but the following notes may be interesting. I have a bird, one of a nest of three, which a gentleman in this neighbourhood obtained a few years ago from the forest. The other two were accidentally killed several months before the one I possess,—and this is not fully adult,—but they were much blacker. The colour of the one I have is a dull blackish brown, with a slight purple tinge when viewed closely, and with regard to markings it has very little indications of any; the bars across the tail are slightly visible, and so are a few slightly paler markings upon some parts of the plumage, but at a little distance the bird appears of an uniform dark brown. The third quill-feather of the wing is longest, and the bird itself is of a slender build, all seeming to point to its being the variety in question, and for some time I considered it none other, but having read an article upon the quill-feathers of the hen harrier—in which they appear sometimes to differ in length, *sexual* though these differences are—I cannot place such implicit confidence upon my former conclusions.—*G. B. Corbin.*

**Pied Flycatcher near Bolton.**—Last Monday as I was travelling from Bowdon to Bolton Road, I saw no less than six pairs of pied flycatchers. A fine male was shot just as it was entering a hole in a decayed oak.—*E. Butterfield.*

**Pied Flycatcher in County Mayo.**—Your ornithological readers will, I have no doubt, feel interested in hearing that a fine specimen of the pied flycatcher has visited this extreme western district, and I believe is the first and only one recorded as being captured in Ireland. Thompson, in his 'Birds of Ireland,' does not mention its occurrence, and Professor Newton, in his new edition of 'Yarrell's British Birds,' speaks of it breeding in a few places in North Wales, which has hitherto appeared to be the extreme limit of its western migration. For several days previous to the 18th inst. we had a continuance of easterly wind, with very dry warm weather: on the evening of that day I was slowly walking through the lawn here, looking out for some of our summer visitors, when my attention was attracted by a small bird catching insects in true flycatcher style; this appeared very strange to me, as it was a month or six weeks too early for the appearance of the *Muscicapa grisola*. I, however, watched it very attentively for some time, when it appeared to me that its head looked smaller and its plumage closer than those of the spotted flycatcher, and occasionally I fancied that I saw some white markings on the wings, but of this I was not quite certain, as the evening light was just failing, and I had to return to the house not at all satisfied as to its identity. However, next morning I returned to my post of observation, and in a short time saw the little fellow hard at work taking insects as usual, but now having better light, and the aid of a field glass, I very soon made out the white wing-markings very distinctly; these, together with the colour and whole

contour of the bird, proved that it was not *M. grisola*, so, to make certain of its identity, I took my gun, and with half a charge of No. 8 shot I brought it down, when I was very much pleased to find that it proved to be a very fine adult female pied flycatcher (*M. atricapilla*). The specimen is now in the collection of the Royal Dublin Society.—*Robert Warren, jun.*; *Moy View, Ballina, County Mayo, April 21, 1875.*

**Golden Oriole at the Land's End and in Scilly.**—A female specimen of the golden oriole, in an adult state of plumage, was captured a day or two since very near the Land's End. I have just seen Mr. Dorrien Smith on his arrival from the Islands, and he reports that a bright plumaged golden oriole has frequented his gardens at Trescoe Abbey for the last fortnight.—*Edward Hearle Rodd; May 22, 1875.*

**Nightingale near Huddersfield.**—On the 19th of May I went to Mollicar Wood, Farnley, near Huddersfield, to hear a much-talked-of nightingale. I called on a reliable old man named Matthew Parkin, living within a quarter of a mile of the above wood, who informed me that he first heard this nightingale about the 5th or 6th of May; he also informed me that it usually began to sing about a quarter before ten each evening, and that he had heard it singing a little in the daytime. This night was cold and windy, and the nightingale did not begin to sing until 10.30, probably on account of the state of the weather. It began by uttering some bubble-sounding notes, and soon after commenced a series of low plaintive whistles or chiding notes, which became louder and louder until they were changed to those rich bubbling notes, which became more varied afterwards: it frequently stopped for a few seconds, and then resumed its song. Twice, when some persons tried to approach the songster, it stopped singing and flew noiselessly fifty or sixty yards away, and very soon began again, but soon stopped and again flew silently to its former station, which I think was not more than eight or ten feet from the ground; I could distinctly hear the notes more than a quarter of a mile distant from the bird. More than a week before the above date I heard reports about this nightingale, but did not think them worth attention, because similar reports have been circulated in former years, and generally the bird in question has been proved to be either a blackcap or sedge warbler. The Rev. F. O. Morris, in his 'History of British Birds,' mentions that a nightingale was heard in Cinderfield Dyke Wood, Bradley, near Huddersfield—I forget the date, but think it is about thirty years ago. I believe that this is the only other instance of the nightingale occurring in this district.—*J. E. Palmer; Huddersfield, May 21, 1875.*

**Pigeons resting on Trees.**—My father has a flight of Belgian high-flyers at Wallington: the old birds were purchased from Tegetmeier. The young birds are very fond of resting, in fine weather, upon a dead white poplar, sitting upon the topmost branches. The birds breed in boxes, like ordinary

tame pigeons. Can any of your correspondents inform me if this is a common habit with tame pigeons, or is it possible that these Belgian birds may have had some remote origin from the stock dove?—*A. H. Smee*; *May 11, 1875.*

[I have some dozen or so of black tumblers, some few of which often settle in an old elder tree hard by their dormitory, and they would prefer sleeping thus in the open, but neighbours' cats consider this a capital offence, and when they detect an offender inflict the punishment of death.—*Edward Newman.*]

**Stock Dove in Northumberland.**—A very perfect specimen of the stock dove (*Columba anas*) was shot on the 2nd instant at Lowlynn, in Northumberland. It was taken for a wood pigeon, and was settling in a wood at roosting time in company with a number of those birds. As I take it this is a rare occurrence so far north (Selby stating that he could never trace it into any of the northern counties) I think it may be worthy of note. It has been sent to Mr. C. Gordon, of Dover, for preservation.—*V. Knight*; *Tweedside Villa, Berwick-on-Tweed, February 23, 1875.*

**Shieldrake near Ringwood.**—A two-year old male of this species was shot on the river on the 16th of November; it was observed for a week previously congregating with a number of tame ducks. The species is not often met with in this locality.—*G. B. Corbin.*

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**Torpedo, Electrical Ray or Numbfish, on the Cornish Coast.**—I have just received a specimen of the torpedo or electrical ray (also known as the numbfish). It measures three feet over all and two feet two inches across the wings. It weighs thirty-three pounds, and was caught on spillers (hook and line) in twenty fathoms of water off the "watering place" near Lamorna, in this bay. The captor, Mr. Eastaway, informs me that it was caught on a "ginged" hook (*i. e.*, a hook of which the line for about six inches from the hook is whipped closely with fine copper wire). As he got the ginged part of the line in his right hand he "felt his hand give way." He then caught the line with his left hand and put his right hand on the wing of the fish to get it into the boat. He then felt a tingling in his right hand, which extended beyond the wrist. After the fish was in the boat he cut the hook of its mouth. In doing this he had the ginged line in his left hand and a knife in his right, but neither hand touched the fish. He felt both hands affected by the tingling up to the wrists. He describes the feeling as that which ensues when one's fingers have been "asleep" and are recovering. He says he felt the tendons of the palm of his hands contracted. A man who washed the fish over the boat's side after she came in was affected by the shock as far up as the elbows. When I saw the fish

it was dead, and no handling, nor even the use of an iron knife in cutting into it, produced any sensation. I found in its stomach a gray gurnard perfectly fresh and uninjured—so fresh, indeed, as to impress one with the belief that the gurnard was first taken in the spiller, and that the torpedo had taken the gurnard and so caught itself. The torpedo is not an unknown fish in this bay, but its occurrence is rare. It is worthy of remark that in this case the electrical shock was felt by the captor whilst holding the wire-covered line in his left hand and cutting at the mouth of the fish with an iron knife in his right hand, without any actual contact with the fish itself. The liver (in two lobes) was of remarkable size; but this is, I think, a characteristic of all our sharks and rays. At one time during the struggle to get the fish into the boat Mr. Eastaway struck it in the wing with his gaff (which was an impromptu one, composed of the iron tiller of the boat with a conger-hook lashed to it), and immediately felt a shock in his hand and fore arm. Mr. Eastaway did not know the fish, nor of its supposed qualities until he landed, and his evidence practically confirms the experiments, which show that the force exerted by the fish is so far strictly electrical as to be capable of transmission through conductors of electricity.—*Thomas Cornish; Penzance, May 17, 1875.*

**Spinous Shark in Mount's Bay.**—A spinous shark, of the swimming sort, has been taken in Mount's Bay to-day. This is the third that I have seen, and it confirms my opinion that there is a spinous ground shark and a spinous swimming shark. It is small: over all, five feet one inch; eye to fork, three feet six inches and a half; greatest girth immediately behind pectoral fin, two feet one inch. It was caught on a hook and line, and hooked in the side of the upper jaw at the gape. The man who has it had one earlier in the year seven feet long, which I failed to see: it also was caught in the bay. He says the spines of the first of the two sharks were phosphorescent after night, even whilst the fish was fresh. This specimen has no tongue.—*Id.; May 5, 1875.*

**"Telescope Fishes."**—I am sorry to see this name used by the Crystal Palace Aquarium Company as an advertisement. Such modes of exciting a sensation are most objectionable, and unworthy this truly national undertaking. The so-called "telescope fishes" are common gold-fishes with double tails and projecting eyes, both which characters are properly denominated monstrosities or deformities.—*Edward Newman.*

**Zoological Station at Naples.**—The 'Kölnische Zeitung' of April 17th contains an elaborate and highly interesting account of the festival which took place at Naples a few days ago, upon the occasion of the opening of the Zoological Station. Dr. Anton Dohrn, the founder of the station, made the opening speech. After him Prof. Panceri, of Naples University, thanked Dr. Dohrn in the name of Italy for his great efforts in carrying the important work to a successful result. The Prefect of Naples had sent a deputy, and

many eminent scientific men were present. After the festival, the guests visited the magnificent aquarium and the working room of the zoologists: there are eighteen gentlemen now working there. The States which have reserved working tables at the Station are Prussia, Italy, Russia, Austria, Bavaria, Baden, Holland, Saxony, Alsace and Lorraine, and Mecklenburg; also, as our readers know, a table has been reserved for the University of Cambridge.—‘*Nature*,’ April 22nd.

[Mr. Lloyd, of the Crystal Palace Aquarium, has been the adviser of everything that has to do with the aquarium department of this undertaking. *Edward Newman*.]

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**Capture of an enormous Cuttle-fish off Boffin Island, on the Coast of Connemara.**—On Monday last the crew of a curragh,\* consisting of three men, met with a strange adventure north-west of Boffin Island, Connemara. The capture of a cuttle-fish sounds little of an exploit. Ordinarily the fish is of small size, a few inches in circumference, with projecting arms, studded with suckers, by which it retains its prey—the body containing a dark fluid, which it emits on being startled, and, blackening the surrounding water, so eludes its enemy. † Very different indeed from this ordinary type was the creature in question. Having shot their spilletts (or long lines) in the morning, the crew of the curragh observed to seaward a great floating mass surrounded by gulls; they pulled out, believing it to be wreck, but, to their great astonishment, found it to be a cuttle-fish, of enormous proportions, and lying perfectly still, as if basking on the surface of the water. What rarely enough occurs, there was no gaff or spare rope, and a knife was the only weapon aboard. The cuttle is much prized as bait for coarse fish, and, their wonder somewhat over, the crew resolved to secure at least a portion of the prize. Considering the great size of the monster, and knowing the crushing and holding powers of the arms, open hostility could not be resorted to, and the fishermen shaped their tactics differently. Paddling up with caution, a single arm was suddenly seized and lopped off. The cuttle, hitherto at rest, became dangerously active now, and set out to sea at full speed in a cloud of spray, rushing through the water at a tremendous rate. The canoe immediately gave chase, and was up again with the enemy after three-quarters of a mile. Hanging on rear of the fish, a single arm was

\* These boats are a large kind of coracle made with wooden ribs, and covered with tarred canvas.

† See Verrill, in ‘Annals of Natural History,’ vol. xiii., p. 255 (1874); Kent, in ‘Proceedings of the Zoological Society’ for 1874; Fredol, in ‘Monde de la Mer;’ Harvey, in ‘Annals of Natural History,’ vol. xiii., p. 67 (January, 1874); Gwyn Jeffreys, in ‘British Conchology,’ vol. v., p. 124, for a large specimen stranded in Shetland; and ‘Field’ Newspaper of December 13, 1873, and of January 31, 1874 (“Devil-fish”).

attacked in turn, while it took all the skill of the men to keep out of the deadly clutch of the suckers. The battle thus continued for two hours, and while direct conflict was avoided, the animal was gradually being deprived of its offensive weapons. Five miles out on the open Atlantic, in their frail canvas craft, the bowman still slashed away, holding on boldly by the stranger, and steadily cutting down his powers. By this time the prize was partially subdued, and the curragh closed in fairly with the monster. The polished sides of the canoe afforded slender means of grasp, and such as remained of the ten great arms slashed round through air and water in most dangerous but unavailing fashion. The trunk of the fish lay alongside, fully as long as the canoe, while, in its extremity, the mutilated animal emitted successive jets of fluid which darkened the sea for fathoms round. The head at last was severed from the body, which was unmanageable from its great weight, and sank like lead to the bottom of the sea. The remaining portions were stowed away and carried ashore, to the utter amazement of the islanders. To quote from 'The Sea and its Living Wonders,' I find it stated that—"Near Van Dieman's Land, Peron saw a sepia as big as a tun rolling about in the waters; its enormous arms had the appearance of snakes. Each of these organs was at least seven feet long, and measured seven or eight inches round the base. These well-authenticated proportions are truly formidable, and fully justify the dread abhorrence Polynesian divers entertain of these snake-armed monsters of the deep. Banks and Solander, in Cook's first voyage, found the dead carcase of a gigantic cuttle-fish floating at Cape Horn. It was surrounded by aquatic birds, feeding on the remains. From the parts of this specimen preserved in the Hunterian Collection, and which have always strongly excited the attention of naturalists, it must have measured at least six feet from end of tail to end of tentacles." If the specimens alluded to above are correctly described as "gigantic" and "formidable," well may the capture made at Boffin be regarded as wonderful; and it is owing to the merest chance that the writer became aware of the circumstance, and possessed himself of such evidence as puts the truth of the matter beyond all doubt. Of the portions of the mollusk taken ashore two of the great arms are intact, and measure eight feet each in length and fifteen inches round the base. The two tentacles attain a length of thirty feet. The mandibles are about four inches across, hooked, just like the beak of an enormous parrot, with a very curious tongue. The head, devoid of all appendages, weighed about six stone, and the eyes were about fifteen inches in diameter. Doubtless this account may sound exaggerated, but I hold such portions of the fish as are fully sufficient to establish its enormous size, and verify the dimensions above given.—*Thomas O'Connor, Sergeant, Royal Irish Constabulary; Boffin Island, Connemara, April 28, 1875.*

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## Proceedings of Scientific Societies.

### ZOOLOGICAL SOCIETY OF LONDON.

April 20, 1875.—ROBERT HUDSON, Esq., F.R.S., V.-P., in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of March, 1875, and called particular attention to the following animals:—An Indian wild dog (*Canis primævus*, Hodgs.), from British Burmah, presented March 3rd, by Lord Northbrook, the Governor-General of India; three crested black kites (*Baza lophotes*): a Himalayan magpie (*Pica bottanensis*); a Hamadryad snake (*Ophiophagus elaps*), obtained by purchase; and a bearded falcon (*Falco biarmicus*), presented by Capt. Parry, of the barque 'Isabella Blyth.'

A letter was read from R. J. Wardlaw-Ramsay, dated Tonghoo, British Burmah, 22nd November, 1874, containing additional remarks on the woodpecker (*Gecinus erythropygus*), described by him at a former meeting.

Mr. Edward R. Alston exhibited and made remarks on a rufous variety of the murine dormouse (*Graphiurus murinus*, Desm.), from West Africa.

Mr. W. B. Tegetmeier exhibited and made remarks on two hybrid pheasants, the result of a cross between Phasianus colchicus and Euplocamus nycthemerus.

Mr. A. H. Garrod read a paper on the structure of the deep plantar tendons in different birds, in which the different modes of arrangement of these tendons was pointed out, and their importance in the classification of the order insisted upon.

A communication was read from Mr. R. J. Lechmere-Guppy on the occurrence of *Helix coactiliata* in Trinidad, and on the general distribution of the land and fresh water Mollusca of that island. A second communication from Mr. Guppy contained a note on a variety of *Bulimus constrictus* found in Venezuelan Guiana.

A communication was read from the Rev. O. P. Cambridge, in which he gave descriptions of nine new species of spiders of the genus *Erigone* additional to those described in a former communication on the same subject.

A communication was read from Mr. George Gulliver containing a description of the spermatozoa of the lamprey, *Petromyzon murænus*.

Mr. R. B. Sharpe exhibited and made remarks on some specimens of some rare species of birds of prey, lately received by the British Museum from Australia.

May 4, 1875.—E. W. H. HOLDSWORTH, Esq., in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of April, 1875, and called particular

attention to the following animals:—A Syrian bulbul (*Pycnonotus xanthopygos*, Hempr et Ehr.), presented by Mr. E. T. Rogers, April 12th; a collection of small finches from South America, purchased April 19th, amongst which were examples of several species of *Spermophila* (*S. cærulescens*, *S. aurantia*, *S. lineola* and *S. hypoleuca*) not previously exhibited; and an albino of the common macaque (*Macacus cynomolgus*) or of the Philippine form of the species (*M. Philippinensis*), brought from Samar, Philippines, and presented by Mr. J. Ross, April 23rd.

Mr. Selater exhibited and made remarks on a skin of a chick of a cassowary (*Casuarus picticollis*), received from Dr. George Bennett, of Sydney. The bird had been obtained alive from the natives in Milne Bay, New Guinea, by Mr. Godfrey Goodman, Staff Surgeon, R.N., when in the 'Basilisk' in 1873.

Professor Newton exhibited and made remarks on a series of tracings of some hitherto unpublished drawings discovered in the Library of Utrecht, representing the dodo and other extinct birds of Mauritius.

Professor Newton also exhibited and made remarks on two specimens of Ross's arctic gull (*Rhodostethia Rossi*), one of the rarest of arctic birds.

Mr. H. C. Sorby read a paper on the colouring matter of the shells of birds' eggs as studied by the spectrum method, in which he showed that all their different tints are due to a variable mixture of seven well-marked colouring matters. Hitherto the greater part of these had not been found elsewhere. The principal red colouring matter was connected with the hamoglobin of blood, and the two blue colouring matters were probably related to bile pigments; but in both cases it was only a chemical and physical relationship, and the individual substances were quite distinct, and it seemed as though they were special secretions. There appeared to be no simple connexion between the production of these various egg-pigments and the general organization of the birds, unless it were in the case of the Tinamous, in the shells of the eggs of many species of which occurs an orange-red substance not met with in any other eggs, unless it were in those of some species of cassowary.

Mr. A. H. Garrod read a note on the hyoid bone of the elephant, as observed in two specimens of the Indian elephant which he had lately dissected, and showed that the position of the bone *in situ* had been misstated by former authorities.

A second paper by Mr. Garrod containing some remarks on the relationship of two pigeons (*Ianthœnas leucolœma* and *Erythrœnas pulcherrima*), which he lately had an opportunity of examining.

A communication was read from Mr. G. E. Dobson on the bats belonging to the genus *Scotophilus*, in which he gave the description of a new genus and species allied thereto. The specimen in question had been obtained in

the Bellary Hills, India, by the Hon. J. Dormer, by whom it had been presented to the British Museum. It was proposed to name it *Scotozous Dormeri*.

A communication was read by Lieut. W. Vincent Legge, R.A., giving particulars of the breeding of certain Grallatores and Natatores on the South-Eastern coast of Ceylon, together with notes on the nestling plumages of the same.—*P. L. Sclater*.

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ENTOMOLOGICAL SOCIETY OF LONDON.

April 5, 1875.—Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

*Donations to the Library.*

The following donations were announced, and thanks voted to the donors:—‘Report of the Commissioners of Agriculture for the year 1872’; presented by the United States Government. ‘Monographs of the Diptera of North America,’ part iii., by H. Loew; ‘Directions for Collecting and Preserving Insects,’ by A. S. Packard, jun., M.D.; ‘New Species of North American Coleoptera,’ by John L. Leconte, M.D., part ii.; ‘Classification of the Coleoptera of North America,’ by John L. Leconte, M.D., part ii.; by the Smithsonian Institution. ‘Bullettino della Società Entomologica Italiana,’ anno sesto, trim. i.—iv.; by the Society. ‘The Journal of the Quekett Microscopical Club,’ No. 28; by the Club. ‘The Canadian Entomologist,’ vol. vii., no. 2; by the Editor. ‘L’Abeille,’ tome xii., livr. 4 and 5; by the Editor. ‘The Entomologist’s Monthly Magazine,’ for April; by the Editors. ‘Newman’s Entomologist’ and ‘The Zoologist,’ for April; by the Editor. ‘Exotic Butterflies,’ part 94; by W. C. Hewitson, Esq.

*Election of a Member.*

Mr. William Lucas Distant, of Streatham Cottage, Dulwich, was balloted for and elected an Ordinary Member.

*Exhibitions, &c.*

Mr. Jenner Weir exhibited a number of young Mantidæ that had emerged from an egg-case received from Ceylon, and remarked on their great resemblance to those recently exhibited from Borneo.

Mr. Bond exhibited a locust which had been taken alive at the bottom of a dry well near the Race Mill, Brighton. The species was uncertain.

Mr. Sealy read the following notes on the species of Ornithoptera exhibited at the last Meeting:—

“The insect occurs in tolerable abundance along the coast of South

Malabar, Cochin, and Travancore. At the town of Cochin, where I live, it is frequently seen. I have also observed it many miles inland, flying over the trees in the low jungles at the foot of the Western Ghauts; but I have not noticed it at any great height above the sea. In Cochin I have seen it from March to August flying over the tops of the tallest cocoa palms, occasionally descending to hover over the flowers—especially those of the large scarlet Hibiscus, near which I have caught it in my own garden. The males seem less common than the females, and seldom were perfect on the wing. For several years I could get no information regarding the larva; none of the natives knew it, but last monsoon I obtained it, and during June and July many were collected; they fed upon *Aristolochia indica*, and apparently upon it only. The larvæ were very splendid, of a rich velvety black, with a lateral band and a saddle of white and red, very roughly tubercled, and the tubercles tipped with red. I cannot from memory attempt a closer description. A plate in "Wood's Natural History" of the imago and larva of a species there given as *Ornithoptera Amphisius* corresponds very closely with this Cochin species. But there seems some doubt about its identity. On July 19, 1874, I obtained a large quantity both of larvæ and pupæ: the larvæ I fed upon *Aristolochia*, and many changed to pupæ. From these many emerged before I left India (August 13), and others on board ship from the pupæ I took with me. They appear to remain about three weeks in pupa. The pupa possesses the power of making a curious noise, like "pha, pha," and makes it very loudly when touched; the noise is accompanied (perhaps produced) by a sharp contraction of the abdominal segments. I thought at first it was merely produced by the rubbing of one ring of the pupa case against the next, but the sound did not resemble a mere frictional sound, it was more like the sound of the rush of air through small holes, "pha, pha!" I tried to produce it with a dead chrysalis, but failed: the pupa sometimes contracted on being touched without making the noise, and appeared unable to make the noise until some time was given to allow it to recover its vigour.

"A curious incident connected with this insect came under my notice some years ago. In cleaning out the body of a female, I turned out a mass of apparently mature eggs, but they all proved unfertile: soon after, in operating upon another female, a slight pressure upon the body drove an egg out from the oviduct, and a repeated pressure extruded a second, the rest—20 or 30—would not come, and were taken out in emptying the body. The two which had been pressed through the oviduct hatched, and all the others shrivelled. I mention this as it seems a sort of confirmation of Von Siebold's observation respecting bees, that the fertilization of the egg takes place on its passage through the oviduct. The two larvæ lived two or three days, refusing every leaf I offered them; I did not then know *Aristolochia* was the food-plant."

Mr. Sealy also called attention to a peculiarity in the formation of the hind wings of the male, specimens of which he exhibited, there being a large pouch on the anal margin, filled with fluffy hair.

Mr. M'Lachlan read a letter he had received from an Englishman residing in Pueblo, Colorado, U.S., stating that he had grown potatoes in various parts of the Union, and that he was satisfied it was not necessary for the potato beetle to have pieces of haulm to support him whilst crossing the Atlantic, as he had found the insect in his potato pits, eating the tubers greedily; and that unless the English authorities took some steps to prevent the importation of potato bulbs, he believed the beetle would soon be in this country.

Mr. M'Lachlan drew attention to the following remark by Lieut. W. L. Carpenter, in his Report of the Zoological Collections made in Colorado during the summer of 1873 (extracted from the Annual Report of the U.S. Geological and Geographical Survey) with reference to the Colorado potato beetle:—

“This insect is still marching eastward, not a single specimen having been seen west of the dividing-ridge. It is probable that, should the potato be cultivated on the western water-shed, it would be free from the ravages of this destructive insect for a number of years; but that it would ultimately make its appearance in that region through the agency of the seed. This I believe to be the manner of their introduction to distant localities, as they are sluggish travellers, and quite incapable of spreading so rapidly by their own instinct. This belief is further sustained by their continued absence from the Salt Lake basin, occasioned by the cheapness of vegetables in the Mormon settlements excluding the importation of potatoes from Colorado. Not found at a greater altitude than 8000 feet.”

Mr. Bates believed the distribution of the beetle depended more upon climatic conditions. The native home of the insect was the eastern plateaus of the Rocky Mountains, as far south as Mexico, and the climate of the West Coast of America being much more like the West Coast of Europe, their Faunas also bore a greater resemblance. He believed the absence of the insect from the west of the Rocky Mountains to depend upon the difference of climate, and the same cause might be expected to prevent the establishment of the insect in countries where the moisture of the atmosphere would probably be fatal to it.

Mr. Stevens remarked that on different occasions he had received the insect in great numbers in bottles from Orizaba.

*Paper read.*

Mr. Edward Saunders communicated the first part of a “Synopsis of British Hemiptera (Heteroptera).”—*F. G.*

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*Notes on the Natural History of South Africa.*

By R. B. and J. D. S. WOODWARD, of Natal.

(Continued from S. S. 4477.)

*Cranes.*—There are three varieties of cranes found in Natal, viz. the wattled crane (*Grus carunculata*), the crowned crane or demoiselle (*Anthropoides virgo*), and the blue crane (*A. paradisea*). The first of these species is a gigantic bird, measuring four feet six inches in length; its general colour above is slate; the head and neck pure white; the rest of the plumage black; two flaps of skin depend from either side of the chin, from which it derives its name of “wattled”; the bill is red, and the legs black.

All the cranes confine themselves to the upper and colder districts of this country, probably on account of it there being more open and containing extensive tracts of swampy ground. The wattled crane is not gregarious; they generally keep in pairs, although occasionally three or four may be seen together. They feed almost entirely on reptiles and insects, but in the summer time do a great deal of damage to the plantations of Indian corn before the grain is ripe. The nest is made on a tuft of grass, in which it lays two eggs of a yellowish brown, spotted with red; it returns constantly to the same nest. J. D. S. Woodward, while living on the Upper Umkomanzi, obtained a fine young bird of this species, which he reared on maize porridge until it could take its own food, when it used to eat the whole grain, besides whatever animal food it could get. It was confined in a small yard for four months, after which it was given its full liberty. The bird became perfectly tame, and never attempted to leave, although it used to wander to the swamps, two miles from the house, in search of frogs, of which it was very fond, but it always returned home regularly at meal times, making a peculiar whistling cry at the door until it drew attention. Sometimes the wild cranes would pay it a visit, but it did not seem to care for their company. It used to come to its name of “Mick,” and follow its master about like a dog for long distances: on his return after being away it would run and dance to meet him, showing unmistakable signs of pleasure. “Mick” did not understand the art of bathing, and made a very bad job of it, not succeeding in wetting more than half its body after a great deal of splashing.

The demoiselle (*Anthropoides virgo*) is a remarkably graceful crane: the head and neck are black, with the exception of the crest, which is composed of drooping ash-coloured plumes; the body slate-coloured; the tail black; iris crimson; in length three feet three inches, height three feet six inches. It frequents the same localities as the wattled crane, and is often seen in company with it. The demoiselle is easily domesticated: we saw a young bird which a friend of ours had obtained from a Kafir: it was covered with bluish down, which gave it a curious appearance. The nests are not often found, owing to the young birds quitting them as soon as they are hatched, but the eggs of the three species found here are said to be very similar in size and colour. This, the commonest of our cranes, is known here as the "Kafir crane."

The blue crane (*Anthropoides paradisea*), as its name implies, is of a uniform light blue colour, the wings being covered with black glossy plumes falling over them, producing a very elegant effect. It seems to be rather a rare bird, and is only to be met with in certain districts. We lately saw a pair of these birds in Durban, which had been brought down from the uplands for exportation: they looked very comfortable in their large airy cage. Some time since a sportsman when out shooting, and seeing no better game, fired into a flock of cranes, knocking over two or three. He said that after having extracted a lot of oil from them by parboiling, he had them baked and made an excellent meal off the flesh.

*Civets and Ichneumons.*—These small Carnivora abound in great variety in this country. The following species have come under our notice:—The civet (*Viverra civetta*), the suricate (*Rhizæna suricatta*), the gray ichneumon (*Herpestes Pharaonis*), the banded mungos (*Herpestes banditus*), and the golden mungos.

The civet is a beautiful little animal of a yellowish colour, marked with large brown spots; the hair is long on the top of the back, and when erected forms a mane. By setting steel traps in their runs we have often caught them: they are easily discovered by the strong musk-like perfume which pervades the spots they frequent. The scent from these animals is not much used now, but formerly it was greatly esteemed: this is contained in two glands concealed under the tail, which is long and bushy. The entire length of the civet is two and a half feet. We believe there would be no difficulty in domesticating it, but our own experience is very limited. We once took one alive, but its leg being unfortunately broken it only

lived a few days. This creature was very savage, and would not eat any food during the day, but at night it readily devoured pieces of raw flesh, and took a little bread and milk.

The suricate is nearly allied to the civet, but is a considerably larger animal; the specimen we have measured is three and a half feet in length, of which the tail is eighteen inches. Its skin is covered with long coarse hair of a gray colour, shaded with green, with black bands on the hinder parts of the back; the tail bushy. This animal is not very common: it is said to confine itself more to the open country, where it lives in the deserted holes of the ant-bear, issuing forth at night and prowling about the cattle kraals in search of grubs imbedded in the dung. The Kafirs say it is very timid, and will not molest their fowls.

The gray ichneumon is very abundant in the bush, where it takes up its abode under some rock near a running stream. In the early morning or evening it may be seen cautiously stealing forth to look for mice and reptiles, which are then in motion. It is most useful in destroying large numbers of reptiles, and on account of this habit it has often been tamed, and will effectually keep a house clear of all vermin. The curious instinct which leads the ichneumon to discover the buried eggs of the crocodile is well known. Even the formidable Indian bandicoot is not proof against the agility and strength of this animal. A relation of ours, when in India, confined these two animals in a room together, when, after a furious fight, the bandicoot had to succumb to the superiority of its antagonist. We caught one some time back; it was of a dark gray colour, and measured eighteen inches: it was very savage, and soon effected its escape.

The banded mungos differs in its habits from the rest of its tribe, being gregarious and nocturnal. When quietly watching for game in the thick bush, the hunter is often disturbed by the rustling and low pig-like grunts of these little animals engaged in a foraging expedition in troops of twenty or thirty. If he should then remain perfectly still he will have an interesting study; taking no notice of his presence, they will crowd up to his very feet, tearing up the earth in all directions to obtain the roots on which they principally subsist; alarmed they disperse on all sides, squealing loudly. They seem to be very easily tamed; we saw one on board one of the Cape steamers, belonging to the mate; it was extremely docile, and would climb up on to his shoulder, where it would sit contentedly.

It knew its name, and came running from any part of the deck on being called: it ate readily soaked bread and porridge. When enraged the banded mungos has the power of emitting a very disagreeable odour, which prevents its being often captured. In length it is about fifteen inches, and is of a reddish gray colour, banded across the back with stripes of black.

There is another common species, of a uniform golden yellow colour, which is about the same size as the last mentioned. It leads a solitary life in holes in the bush, and hunts its prey in the same manner as the ferret, following them into their burrows. We have caught and caged this creature: it is omnivorous and easily reared. The Kafirs call it "ubose," and say that it destroys snakes.

*Divers.*—The darter (*Plotus Anhinga*) is well known, being found both in the Old and New World: it is pretty common on the coast of Natal, and often wanders up the rivers, which makes it seem almost as much a fresh- as a salt-water bird. We cannot state positively whether they breed inland or not, but Dr. Versfeld, of the Cape, found an egg on the Burg river, supposed to be laid by the darter. We shot a fine specimen of this bird one evening, whilst watching for ibises on the banks of the Ifafa: it alighted on a branch of an overhanging tree. The plumage is glossy black; the shafts of the feathers of the wing-coverts and plumes are fulvous; the throat and under parts of the neck are fawn-coloured. A distinguishing feature of this bird is the peculiar corrugated feathers on the top of the wings and tail. We have many times noticed this elegant bird pruning and sunning itself on a flat rock in the middle of the stream. The old naturalists well named this the "snake-bird," for it might readily be mistaken for a water snake when swimming, with its long curved neck and bill alone visible. The entire length of the darter is two feet seven inches, of which the neck is nearly half.

*Phalacrocorax capensis.*—This cormorant, like the former, more properly belongs to the sea-birds, but we shot the specimen before us in this neighbourhood, seven miles from the sea. In size it is two feet four inches, stout and heavily built; general colour black-green; throat and breast whitish. The feathers of the wing-coverts and scapularies are metallic gray, bordered with black. We occasionally see small flocks of this bird, coming from the sea, flying very rapidly, but they do not stop with us long. It is called by the colonists the "wild goose," and is sometimes eaten, but the

flesh has a strong fishy flavour. It is extremely common at the Cape: Mr. Layard says, "I have seen it in flocks extending upwards of three miles in length and a quarter of a mile wide across the bay, the hindermost constantly flying forward and plunging into the sea as soon as the outside of the army was reached. In this way the flock gradually moved out of the bay, feeding as it went. It breeds on Pomona Island and on all the small rocks along the coast, laying two eggs of a blue ground covered with white chalk."

*Water-treader* (*Podica Mozambicana*).—This little bird is very common, and takes the place here of the English coot. It is one of the half-webbed-footed tribe, being nearly allied to the grebes. It seems more than any other bird to support itself on the water and run along the surface, from which it derives its name. Its length is twenty-one inches; colour above brown, beneath white; breast and flanks fulvous; a few white spots on the shoulders; the legs and feet are bright orange.

R. B. & J. D. S. WOODWARD.

(To be continued.)

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*Researches and Excavations carried on in and near the Moa-bone Point Cave, Sumner Road, in the Year 1872.* Read at a Special Meeting of the Philosophical Institute of Canterbury, New Zealand, on the 15th of September, 1874. By JULIUS HAAST, Ph.D., F.R.S., President.\*

IN the spring of the year 1872 Mr. Edward Jollie suggested to me that the Moa-bone Point Cave, near Sumner, if properly examined, would doubtless yield important and interesting results. My friend thought that, by making there extensive and careful excavations, the question as to the period of the extinction of the moa would be, if not entirely solved, at least considerably advanced, and that even the ground near the entrance of the cave,—many acres in extent,—if properly investigated, would offer additional evidence for the elucidation of the subject. On my remark that no funds for such an undertaking were at my disposal, Mr. Jollie headed at once a

\* Communicated to the 'Zoologist' by the author. I exceedingly regret that more than half a year should have elapsed subsequently to the reading of this invaluable paper before even the first portion could appear in the pages of the 'Zoologist.'—*E. Newman.*

subscription list for the purpose, followed by a number of gentlemen who took an interest in the matter, and which, assisted by a grant from the Philosophical Institute of Canterbury, soon placed the greater portion of the necessary funds in my hands. After having obtained the permission from Mr. Alfred Claypon Watson, Sumner Road, on whose property the Sumner Cave is situated, I began the work of excavation on Monday, September 23rd, and ended on Saturday, November 9th, 1872, the same having thus been accomplished in seven weeks, during which time I occupied always two labourers working under my directions. I may be allowed to present here my warmest thanks on behalf of the Canterbury Museum to the subscribers of the funds, and to Mr. Watson, the owner of the soil, for his permission to undertake the work. I wish also to apologise to them that I have not been able before to-day to lay the results of these excavations and researches before them. However, I must plead, in extenuation, that the bulk of this paper was written more than a year ago, but that I was then compelled, from want of room in the Museum, to repack the extensive collections made during these excavations, before I found the time to examine them thoroughly and describe them in detail; and only in the last few months I have managed to make the necessary space in one of the work-rooms for doing so.

Before entering into a description of the results achieved, I think it will be expedient to offer a few general observations on the geological features of the cave and of the surrounding country, as in the summing up it will be necessary for me to refer to them in elucidation of some of the points at issue.

*Geological Features.*—Banks Peninsula, an extinct volcanic system of large dimensions, standing as an island, in post-pliocene times, in the sea, shows by the configuration of its base that an oscillation averaging about twenty feet in vertical height has taken place, the country being depressed and afterwards raised to about the same altitude again. This line is well visible travelling round Banks Peninsula to its western termination, where, when we reach that altitude above the sea-level, the signs of a former submersion disappear below the newer fluvial and lacustrine deposits. During and after the small submergence of its base, this portion of Banks Peninsula was, of course, subjected to the fury of the waves, when in favourable localities caves were formed either by the removal of loose materials (tufas) between two harder lava-streams, or by the

enlargement of pre-existing hollows, such as are found as air-bubbles, often of gigantic size, in lava-streams running generally parallel to the action of their flow. In this instance, there is no doubt that the Moa-bone Point Cave is a pre-existing hollow in a doleritic lava-stream, which has been enlarged by the enormous power of the dashing waves of the ocean beating here at one time furiously against the northern foot of the Peninsula.

In previous publications (amongst others, 'Report on the Formation of the Canterbury Plains,' 1864, p. 22 *et seq.*), I have shown how in post-pliocene times from the material brought down by the enormous glacier-torrents, forming huge shingle fans at the foot of the glaciers, two bars were thrown across the sea—one to unite the northern or Waimakariri-Ashley deposits with the northern slopes, another to connect the southern or Rakaia-Ashburton beds of the same nature with the southern slopes of Banks Peninsula, behind which a huge lake was formed, of which Lake Ellesmere is the last remnant. Of the northern bar we can trace the inner or western shores through Kaiapoi to the neighbourhood of Woodend. In this large fresh-water lagoon (occasionally an estuary basin) the Waimakariri, Selwyn, and sometimes the Rakaia, discharged their waters, having an outlet near the north-western slopes of Banks Peninsula, of which, in going towards Cashmere, the residence of Sir Cracroft Wilson, we can easily trace the lines of dunes and shingle by which the eastern shore of that lake was formed, being in the beginning very narrow, and only gradually, as more and more material was added, assuming a greater breadth. Thus, we are able to follow the different lines of these earliest-formed beds from the neighbourhood of Kaiapoi, where they are comparatively narrow, along the eastern boundary of Christchurch to the northern foot of the Peninsula, gradually diverging more and more.

In my former paper, entitled "Moa and Moa Hunters"\* (Transactions of the New Zealand Institute, vol. iv., p. 89), I have already alluded to the fact that the ovens of the moa-hunters were confined to the inner lines of these dunes, and a further close examination of the district between Christchurch and New Brighton has confirmed fully my former more local observations. Thus it is evident that when the former inhabitants of this part of New Zealand existed principally upon the chase of the moa, the sand-dunes had scarcely

\* I trust on a future occasion to be favoured with a copy of this paper also for publication in the 'Zoologist.'—E. N.

reached the foot of the Peninsula, where now the ferry road crosses the Heathcote, and consequently that the whole breadth of the sand-dunes from opposite that locality to the Sumner bar, where they have now their south-eastern termination, have been formed since. There are some Maori ovens and kitchen middens on the northern side of the Heathcote estuary, but they invariably contain only shell-beds.

*Position of the Cave.*—When the cavity, now called the Moabone Point Cave, was enlarged by the waves of the sea, the estuary of the Heathcote-Avon in its present form was not yet in existence. Close to this cavity, on its western side, a hard doleritic lava-stream—now passed through by the Sumner road cutting—reached for some distance into the sea, forming a small headland, against which, principally on its eastern side, the waves of the Pacific Ocean broke with considerable force. Masses of rock were detached by the surf being taken along in an easterly direction for about a quarter of a mile forming a ridge, gradually becoming lower, and losing itself among the sands. The formation of this ridge principally took place when this portion of the Peninsula was some twelve to fifteen feet lower than at present, the upper line of boulders being about sixteen feet above the present high-water mark. When the land rose again the sea was cut off by this boulder ridge from the entrance of the cave, a huge rock lying here nearly across, protecting it at the same time from being filled up by the deposits of drift sands now forming on the flat close to it. A second and lower line of boulders was formed in front of the former about five feet above the present high-water mark, with a small terraced space behind it. Since then other deposits, formed in the Avon-Heathcote estuary, have been added as a small belt in front of this last line of boulders, brought into its present position by the action of the open sea.

Before giving a description of the cave as I found it before beginning my labours, I may observe that the same was well known from the very beginning of the Canterbury settlement. It was even inhabited by some of the earliest settlers, and for some time afterwards afforded shelter to lime-burners, fishermen, and road parties, of whom, as will be seen in the sequel, ample traces were left behind. The entrance of the cave, which is about forty feet from the crown of the Sumner Road, which has here an altitude of 18·59 feet above high-water mark, is situated nearly five feet lower, or

13.64 feet above high water, taking the level of the surface for our line. An opening, which is about thirty feet broad by eight feet high, being, however, much narrowed by a huge rock, leads into the cave, of which I found the floor slightly sloping down. The cave itself consists of three compartments, of which the first possesses by far the greatest dimensions, running nearly due north and south, and being 102 feet long, 72 feet broad towards the middle, and about 24 feet high. From its termination, by a small passage a second cave is reached, which is 18 feet long, 14 feet wide, and about 11 feet high, its direction being north by west to south by east; at its southern end a small passage, 3 feet high by about 2.50 feet broad, leads into a third or inner chamber, which is 22 feet long, with an average width of 16 feet, and about 20 feet high, running again, like the principal cave, due north and south, its floor being about eight feet above high-water mark. My best thanks are due to Mr. T. Roberts, the present engineer of the Gladstone and Timaru Board of Works, who, at my request, has taken the necessary levels and surveyed the cave, the results of his labours being attached to this report.

*Contents of Cave.*—An examination of the surface beds showed that the floor of the main cave was, in some localities, covered with the remains of European occupation, in many others by the excrements of goats and cattle, introduced into Canterbury by the Europeans in 1839; but that everywhere below them, when visible, portions of shells of mollusks were occurring, the same species as still inhabit the estuary close by, and had served as food to the natives of the islands visiting the cave in former times. Towards the end of the main cave these beds gradually thinned out and were mixed with each other, till, at the entrance to the second cave, marine sands, the former floor of the cave, reached the surface.

So, proceeding with two labourers to the cave, I instructed them to dig two trenches, crossing each other at right angles, in the centre of the cave, till they reached what they considered the lowest part of the deposits due to human agency. On the 29th of September, when arriving early in the morning, the greater portion of that work had been accomplished, the workmen having reached a bed of agglomerate, which they considered the bottom of the cave, for our purpose, or at least reaching to the earliest beginning of human occupancy. Digging, by my direction, through this agglomerate

for a considerable distance down into the sands below it without any proof of human presence being obtained, I also reluctantly, at least for the present, gave up any further work below it. At the centre of the cave, where the two trenches crossed, I noticed the following sequence:—

	ft. in.
1. Shell beds, consisting of the remains of the following species, now still inhabiting the estuary:—Cockle, "huai" or "pipi" ( <i>Chione Stutchburyi</i> ); "pipi" ( <i>Mesodesma Chemnitzii</i> ); periwinkle, "hetiku-tiku" ( <i>Amphibola avellana</i> ); mussel, "kuku" ( <i>Mytilus smaragdinus</i> )	1 10
2. Ash bed with some pieces of flax, cabbage-tree leaves, charred wood, &c.	0 8
3. Bed consisting of shells (the same species as No. 1), often very much decomposed	1 2
4. Ash and dirt bed, with a few pieces of moa bones	0 9
5. Agglomeratic beds, consisting of pieces of rocks fallen from the roof	0 6
	4 11

This latter deposit rested upon marine sands, in which I had dug down three feet without results. Between Nos. 3 and 4 a sharp line of demarcation was clearly visible, which, as the continuation of the excavation showed, was of great importance. European beds do not appear as occurring on the surface at this point, as they had been previously cleared away by the workmen. Near the entrance of the cave the following beds were passed in the longitudinal trench:—

	ft. in.
1. Beds of European occupation, cow dung, tin, pieces of bottles, &c.	0 9
2. Shell beds	2 3
3. Ash beds	0 5
4. Shell beds	1 4
5. Ash beds, chips of wood, tussocks	0 6
6. Shell beds, often very much decomposed, with small chips of timber, and thin beds of ashes between them, about	3 0
	8 3

(Lowest portion of No. 6 not reached). Owing to the depth of the trench at this spot the same was not continued. The spot where I noted this section was about ten feet from the entrance

of the cave. At the point where it reached the large rock, lying nearly across the entrance of the cave, the sequence was as follows:—

	ft. in.
1. Beds of European origin - - - - -	0 7
2. Shell beds - - - - -	2 1
3. Ash beds - - - - -	0 6
4. Shell beds - - - - -	1 4
5. Ash beds - - - - -	0 9
6. Drift sands - - - - -	1 0
7. Ash and dirt beds (lower series) - - - - -	0 7
8. Agglomerate - - - - -	0 5
	7 3

The shells in the beds were exactly of the same description as those given in the foregoing section at the junction of both trenches in the centre of the main cave. The sequence of the beds and this identity of species proved clearly that a native population, living principally upon the mollusks now inhabiting the estuary, have occupied every part of the cave during a very long period, that portion of the entrance being of course preferred: this accounts for the greater thickness of the beds in its immediate neighbourhood, which, as will be observed, gradually thin out as we advance towards the termination of the first cave. Advancing to a consideration of the section exhibited in the cross trench, we find that it passes through the following beds on its eastern side:—

	ft. in.
1. European beds, consisting of wheaten straw, bones of butcher's meat, shells, match-boxes, horse dung* - - - - -	2 1
2. Ash bed, tussocks (Maori) - - - - -	0 4
3. Shell beds, similar to those described previously - - - - -	0 8
<i>Lower Series.</i>	
4. Ash and dirt beds - - - - -	0 5
5. Agglomeratic beds - - - - -	0 7
	4 1

Below No. 5 the marine sands were examined for about three feet down.

\* Here was evidently a favourite spot for the cave dwellers of European origin.—  
J. H.

<i>On the Western Side.</i>		ft. in.
1. European beds, mostly cattle dung	- - - -	0 1
2. Shell beds, like No. 3 in previous enumeration	- - - -	1 1
3. Ashes, tussocks, &c.	- - - -	0 10
4. Shell beds, often much decomposed	- - - -	0 9
5. Ash bed	- - - -	0 4
6. „ mixed with shells	- - - -	0 9

*Lower Series.*

7. Dirt and ash bed	- - - -	0 3
8. Agglomeratic bed	- - - -	0 5
		4 6

Marine sands proved to exist for about three feet below No. 8. Besides the shells, of which the bivalves were with very few exceptions found only in single valves, pieces of wood (partly charred), portions of wooden implements of Maori manufacture, platings made of Phormium tenax and pieces of two broken polished stone implements were collected, whilst close to the bottom of the trench a few moa bones were obtained, amongst which several species were represented. On the top of the dirt-bed immediately above the agglomerate, a small piece of a tibia of *Meionornis casuarinus*, bleached and much decomposed, was observed by me, which had been lying close to a well-preserved seal bone, possessing the light brown colour the bones generally exhibited when exhumed, thus suggesting that the moa bone must have been brought into the cave from the outside after having become bleached and partly decomposed.

In order to test more fully the general character of the beds above the agglomerate, I gave directions to the labourers to work backwards from the cross trench, examining first the south-west corner of the cave, once more cautioning them to use the utmost care, and not to hurry over the examination. With this work we continued until October 3rd, when, after having looked carefully over the specimens obtained, I could not divest myself of the conviction that, in and below the agglomeratic beds, remains proving human occupation must be found. Amongst the objects obtained during the last few days, the workmen having turned over deposits covering an area about twenty by thirty feet wide, and advancing in a south-west direction, were some moa bones, the leg-bones usually broken as for the extraction of the marrow, others of them

calcined, all of them occurring only in the lowest bed. The overlying shell beds, as I shall call them in future, consisted principally of the usual remnants of shells, together with some seal bones belonging to fur seal and sea leopard, portions of the Maori dog, all evidently from their kitchen middens; bones of fish, without exception belonging to the hapuku (*Oligorus gigas*); also bones of small birds, of which the enumeration will be found in the lists attached to this memoir; of the latter, those of the spotted shag (*Graculus punctatus*) were the most numerous.

Works of human industry were not wanting, as we obtained pieces of timber evidently worked and planed down by polished stone implements, and upon one of which a coating of red colour was still visible. Amongst the other objects made of wood hitherto exhumed were—

1. Several pieces of "toa," a thin and long wooden spear made of tawa (*Mesodaphne tawa*), a tree which grows only in the northern part of the Northern Island. This spear is used by the Maoris for shooting birds; for this purpose they form, as it were, a short tube around it with the one hand, through which, after taking proper aim, they jerk the thin spear up suddenly with the other.

2. A patu aruhe, or fern-root beater, made of maire (*Santalum Cunninghamii*), another strictly Northern Island tree.

3. The greatest portion of a whaka-kai, a wooden dish made of pukatea (*Atherosperma Novæ-Zelandiæ*), used for placing fat birds in so as not to lose the oil, or for the preparation of the juice of the tupakihi (*Coriaria ruscifolia*).

4. Several large pawa shells (*Haliotis Iris*), in which the holes near the exterior border are filled with the fibres of flax or ti leaves, thus forming a vessel for the preservation of oil and other liquids.

5. A fish-hook (Matoa), used for catching hapuku, made from the wood of the kai kai atua (*Rhabdothamus Solandri*), another Northern Island tree.

6. A long slender switch, of which part was broken off, and having at the other side a notch for tying. This is called a tokai made of aka, one of the *Metrosideros* or *Rata* species. It is used to keep the entrance of a fishing-net open.

7. Another piece was recognised as a taka ore kaka, a parrot perch made of pukatea.

8. Several pieces belonging to a canoe, such as the puru (two specimens), made of manuka (*Leptospermum scoparium*), used to

stop the holes in a large canoe, for letting the water out; and a square piece of wood, made of totara (*Podocarpus totara*), called tahatiki whaka, used to fasten the sides of a canoe.

9. Also portions of a matiha, or fighting spear, made of manuka, and several other wooden implements.\*

However, besides the few pieces of moa bones which might accidentally have been brought into the cave from the outside, there was nothing which could prove that there had been a regular occupation by the moa hunters. I therefore set the labourers to work to go through the agglomeratic bed once more, and I was delighted to find, very soon, that this time my expectations were not doomed to disappointment. After having passed through that bed, which I found to be here six inches thick, another ash bed of a thickness of three inches was reached, in which I obtained several moa bones, some of them calcined, others in a splendid state of preservation, belonging to *Euryapteryx rheides* and *Meionornis didiformis*, as well as some pieces of charred wood. Proceeding with the utmost care, several large stones were reached covered with several inches of sand, some of them blackened or split by the action of the fire, and placed in such a position as to show that evidently an oven had here been excavated in the sands, these stones, like the remains of the meal taken here, having probably been trampled repeatedly over, and before the ash and dirt beds had been deposited above them. In digging round this spot I obtained the upper mandible of *Aptornis defossor* in a fine state of preservation, and a quantity of moa bones, also two wooden sticks made of pukatea for producing fire: this simple apparatus, the only one found in the cave, has the peculiarity that fire—instead of being obtained by friction lengthwise—was procured by giving the upper stick a turning motion. However, I may add that this was not the only mode by which the moa hunting population obtained fire, as in the same lower beds fire-sticks of the other kind were also found, resembling, in this respect, those belonging to the upper or mollusk-eating population, which are used at the present day by

\* I owe a great deal of this information to Hone Taahu and Tamati Ngakahu, two skilful Maori artificers of the Ngatiporou tribe, Poverty Bay, Northern Island, who, for some months past, have been occupied at the Canterbury Museum with the necessary preparations for the erection of a Maori house, carved and painted in the original style of ancient Maori art, now fast dying out. As they come from a part of New Zealand where the ancient native customs have been retained longest, their information may be considered very reliable.—*J. H.*

the Maoris, and are called "kauwahi" by them. About four feet from this oven we found some large pieces of egg-shells, of which many had still the lining membrane attached, proving, by their form of curvature, that they were portions of a *Dinornis* egg of very large size. Towards the western side of the cave, partly buried in the sands, partly in the ash bed below the agglomerate, a well-preserved skull of a fur seal, probably *Arctocephalus lobatus*, was obtained.

Having been so far successful, I had the sea sands examined over a considerable space, and to a depth of seven feet, when water was reached. Since then I have been boring near the same spot, and found that the sea sands continued for another five feet before the rock on the bottom of the cave was reached, thus showing that there is here a total thickness of twelve feet of marine sands in the cave.

The following shells were obtained in these sands, without doubt brought with them into the cave by the waves of the sea, *viz.*:—*Mactra discors*, *M. donaciformis*, *Mesodesma cuneata*, *Artemis subrosea*, *Turritella rosea*, and fragments of some others, but no estuary shells. On the surface we found—

	ft. in.
1. European deposits, dung of cows, goats, &c., wheaten straw, ashes - - - - -	0 6
2. Shell bed (Maori) - - - - -	0 9
3. Tussock and ash beds - - - - -	0 4
4. Shell beds - - - - -	1 4
5. Ash beds - - - - -	0 2
6. Ditto, mixed greatly with shells, often very much decomposed	0 10
7. Ash and dirt beds (lower series) - - - - -	0 2
8. Agglomeratic bed - - - - -	0 6
9. Ash bed - - - - -	0 3
10. Marine sands to water - - - - -	7 0
	11 10

Amongst the shell-beds blocks of rock, often of large size, were met with, evidently fallen down from the roof, showing that since the formation of the agglomerate bed the cave continued to be still insecure. There was thus conclusive evidence of the moa hunters having used the cave occasionally as a cooking place; whilst the absence of any shells proved, as I shall also show, when speaking of the numerous moa ovens amongst the small hillocks of drift sand near the entrance of the cave, that the population who exterminated

our huge birds did not look with a favourable eye upon the food, used almost exclusively by their successors, supposing that they could have easily collected it. However, I may here observe that near the oven in question a few valves of our common fresh-water mussel (*Unio aucklandicus*) were obtained, which must have been brought by the moa hunters into the cave.

For the next few days we continued to excavate towards the end of the main cave, where, near the entrance to the small middle chamber, the marine sands sometimes reached the surface, European, Maori, and moa-hunter remains being here occasionally mixed with each other, trodden down into the sands by men or cattle. In a few more protected spots, ash and dirt beds, to a thickness of several inches, remained undisturbed above these sands. Advancing from the entrance to the middle chamber towards the big fragment of rock previously mentioned as having fallen from the roof, which is six feet broad by twelve feet long and ten feet high, and forms a remarkable feature in the cave, the artificial deposits soon became more considerable and full of interest. Close to the rock, on its southern side, they reached a thickness of nearly three feet, consisting of—

	ft. in.
1. Beds of European occupation (cow-dung) - - - -	0 4
2. Shell beds (Maori) - - - - -	0 10
3. Dirt and ash beds, with tussocks (flax) - - - -	0 4
4. Shell beds - - - - -	0 9
5. Lower series, dirt and ash beds - - - - -	0 5
6. Agglomerate bed, altering gradually again to ash bed upon the sands - - - - -	0 3
7. Marine sands as far as excavated - - - - -	3 0
	5 11

In the lowest beds, partly imbedded in the sands, we obtained a great number of moa bones, belonging at least to six specimens, of which four were well represented—namely, three specimens of *Meionornis didiformis*, of which two were immature birds, and one specimen of *Euryapteryx rheides*, also not yet full grown.

Advancing towards the huge rock previously alluded to, I observed that one portion of its unequal under surface stood above the sands, thus leaving a space below, from which we took a number of things,—amongst them a fine and perfect pelvis, and several leg bones of an immature specimen of *Meionornis didiformis*, some

bones of the Maori dog, like the former, partly calcined and broken, having been used for food, as well as portions of skeletons of shags, penguins, and some other birds. When examining the shell beds we had repeatedly found amongst them match-boxes, small bones of sheep, and other remnants of European life, evidently brought into their present position by means of numerous rat-holes passing through these upper beds; also near to this inconsiderable spot not filled up by the sea-sands a few small European remains had found their way, which, if the mode of their transport had not been clear to me, might have been a great puzzle. A considerable amount of drift timber was lying here,—without doubt mostly brought so far back by human agency, a great deal of it being charred or partly burnt; and all the evidence before me went to show that this spot, hidden as it was from the entrance by the huge rock in front of it, had been a favourite camping and eating ground both of the moa-hunting and afterwards of the shell-fish-eating populations.

For another week I continued to occupy the workmen in the south-eastern portion of the cave, but gradually advancing towards the western side of the cross trench. Before reaching the trench we came across a stand, having been used for the stabling of a horse, which had been dug into the shell bed to a depth of several feet, in some spots reaching actually down to the marine sands. This strange place for a stable was now mostly filled with horse-dung and European kitchen middens, well trampled down, and above them with a layer of the excrements of cattle. Altogether, in this part of the cave, the beds had been much disturbed by the cave-dwellers of European origin; so that in some instances moa bones were actually mixed up with bones of butcher's meat, lying now together in the disturbed shell beds.

When advancing towards the point where the two main trenches crossed each other, the workmen observed standing vertically in the sands the remains of two much decomposed piles, having a diameter of about eight inches, and which apparently had been deprived of their bark by means of a smooth stone implement, before having been placed in their present position. Evidently they had been burned to the ground before the lowest dirt bed had been deposited, their charred ends standing scarcely above the level of the marine sands. Of these piles the first was observed fifteen feet from the eastern wall of the cave and six feet behind

the cross trench, the second opposite to the first on its south-western side, and at a distance of twelve feet. They were found during my absence, and the men, not thinking their occurrence of sufficient interest, simply took them out—but noting their position—instead of leaving them standing until I came down. They reported that they had reached about sixteen inches down into the sands. During my presence I caused new excavations to be made round the spot where these piles were reported to have stood, but I could not get any other object except portions of one of the piles, which on examination proved to be rimu (*Dacrydium cupressinum*).

In the agglomeratic bed in this south-eastern portion of the cave we obtained a number of moa bones, of which portions of a skeleton of *Euryapteryx rheides* were the most conspicuous. With the latter also the two rami of the lower mandible were found, but not the least portion of the skull; in fact, the absence of any but very small fragments of skulls in all kitchen middens shows that the brain of the moa was considered a great delicacy. Here we got again a few small pieces of obsidian and some chips and cores of flint, together with similar rough and primitive tools made of a hard and compact dolerite found *in situ* close to the cave. In the lower beds also seal bones, a few phalanges from the flipper of a small whale, and bones of birds still inhabiting New Zealand were collected,—amongst the latter those of the spotted shag and small blue penguin were most numerous.

(To be continued.)

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*Notice of a gigantic Cephalopod* (*Dinotentis proboscideus*)  
*which was stranded at Dingle, in Kerry, two hundred*  
*years ago.* By A. G. MORE, F.L.S., M.R.I.A.

IN a collection of rare tracts relating to Irish history which was formed by a London bookseller named Thomas Thorpe, and is now deposited in the library of the Royal Dublin Society, there is a most curious record of the occurrence of an enormous cuttle-fish, whose history is here reproduced as affording an interesting parallel to the recent capture off Boffin Island, which was published in the 'Zoologist' of last month. The first three letters and the description are all printed, together with a rude drawing,

upon the same side of one broad sheet, "printed in London for Francis Smith at the Elephant and Castle near the Royal Exchange in Cornhil." The fourth letter is in manuscript, and the second broadsheet or advertisement was evidently printed in Dublin, so as to be distributed in the form of a handbill.

The drawing represents a cuttle-fish, with broad ovate body covered by a loosely-folded mantle. A pointed extremity, or tail, with what appears like the two lobes of a fin, is shown as projecting beyond the mantle. The head bears two enormous eyes, and above them rise on each side the eight short arms, each bearing two rows of suckers along their entire length. In the centre are seen the two longer arms or tentacles, which are drawn as thick as the rest, and are quite bare and smooth, with no suckers, tapering upwards into a point, as if the club, or expanded portion, had been torn off. But the most extraordinary feature is the so-described extensible proboscis, which is represented as rather thicker than the tentacular arms and is slightly expanded at the top, swelling into a small rounded knob or "head," upon which two small eyes are roughly indicated, and which bears the mandibles.

So circumstantial is the account given by the different persons concerned, and the minute details appear in the main to be so like truth, that I do not see why the extensible proboscis should not be accepted as correct, though of course the little eyes may have been added as ornaments by the enterprising showman. This character, if real, must necessarily be of generic value, and I think that our Kerry "monster," not having yet received a scientific name, may very well be designated as *Dinoteuthis proboscideus*.

I now proceed to give the various documents in regular order, and with the ancient spelling scrupulously preserved:—

"A true Relation of a strange Monster that lately was by a Storm driven ashore at *Dingle-I-cosh* in the county of *Kerry* in Ireland, with letters testimonial under the hands of credible Eye-witnesses."

Letter No. 1 from Thomas Hooke of Dublin to Mr. John Wickins, at the Mearmaid in Milk-street, London.

"Loving Friend, I had heard of this following relation yesterday, but not knowing the certainty of it, did not regard the writing of it; but this evening sent to a very worthy man who tells me he

spake with the Person that is the author, and that took the fish (it is this). One Mr. James Steward whom I know and Alderman Ashurst I think knows, was a trader of a long standing, travelling on the Sea-side at a place in the west of Ireland called Dingle-I-cosh, where there is a great fishing for Pilchers, saw a great fish come swimming on the top of the water, towards the shore, at last it came quite to Land, he marked it and made towards it, and laid hold on the horns of it, and the Crowns on the Horns, had like to have taken off his fingers; it had two Heads, one great one, and a small one coming out of that, the small one had two tongues, and was like the head of an Eagle; on the great head stood ten horns, two were nine and eleven foot apiece, others which were wreathed, four of them about each great horn; the wreathed horns were full of Crowns; many hundreds of them, about the bigness of a cloak button, and like teeth under the Crownes. The bigness of the Monster, was as big as a horse; he hath brought to town two of the wreathed horns and the small head, and the rest are coming up, and will be here the next week, and exposed to view.

“This Relation the man himself, who is a sober Person told to a very good man, from whom I have it, and who saw the picture of it, which picture he hath brought to Dublin, but the shape of the great head this person cannot tell me. This story for the unusualness of it, I take notice of, and seems to be worth writing, if when it appears it answer the relation, which I have also sent to Alderman Ashurst,

“I rest your very loving friend,

THOMAS HOOKE.

“Dublin, Dec. 13, 1673.”

Letter No. 2, from Thomas Hooke (Dublin) to Mr. John Wickins (London). December 23, 1673—

“Loving Friend, I send you this onely pursuant to my former of the Fish, which I now confirm to be as I gave you the first Account with this addition of certainty, that knowing the man by name James Steward, and hearing two or three nights since of his being at a Printers neer our house to get the Lord Lieutenants Order Printed, which he gave him for exposing what he hath of the fish to view, I sent, desiring to speak with him, and he came, having then the Picture with him of the Fish, and he gave me himself the full account of it, viz.

“That in the month of October last, I think about the 15th day he was alone riding by the sea-side, at Dingle-I-cosh and saw a great thing in the Sea, which drew his eye towards it, and it came just to him; when he discerned the horns it began to look frightfully, he said he was sometimes afraid to look on it, and when he durst look on it, it was the most splended sight that ever he saw; The Horns were so bespangled with those Crowns, as he calls them; they shewed he saith like Pearls or precious Stones; the Horns it could move and weild about the Head as a Snail doth, all the ten; the two long ones it mostly bore forwards, the other eight mov'd too and fro every way; When it came to shore its fore parts rested on the shore, and there lay; He got help after awhile, and when he saw it stirred not to fright them, he got ropes and put them about the hinder parts, and began to draw it on shore, and saw it stir'd not to hurt them, they grew bold, and went to pull with their hands on the Horns, but these Crowns so bit them, that they were forced to quit their hold: the crowns had teeth under every one of them, and had a power to fasten on anything that touched them; they moved the Horns with handspikes, and so being evening they left it on the shore, and came in the morning and found it dead. The two long Horns are about one 11 foot, the other 9; the other 8 Horns, about 6 and 8 foot long a peice, and as thick as a man's arm every one of them. He hath brought up to Dublin but two short Horns of the Crowned ones, and the little Head, being not able to bring the rest the way is so long.

“The certainty is attested by many at the place, and is no doubt a very certain truth, the mantle was all red on the out-side, which for the colour sake he kept a peice of it, it was five inches thick, and white under; when they cut the Fish it had not a drop of blood, nor scale, nor fin, my man took a draught of the Picture which I have here enclosed, he said it was as big as any horse as ever he saw, it had no leggs.

“Your loving friend, THOMAS HOOKE.”

Letter No. 3 from Thomas Clear to his son, dated Drangon, neer Clonmell, December 19, 1673.

“DEAR SON,

“I did the last week write to you, which I hope you have received, to which I refer you. This inclosed paper is a form of a strange and monstrous Fish, that was cast on shore in the County

of Kerry in Ireland, about a month since by a storm, you need not doubt the truth of it, for I have myself seen part of it, and have one of the Crowns by me to produce, I refer you to the paper for a relation of it; remember your duty both to God and man; be carefull in both, and the Lord direct you with all our Dear loves to you and all friends, concludes him that is your very affectionate loving Father.

“THOMAS CLEAR.”

#### THE MONSTER DESCRIBED.

“This Monster was taken at Dingle-I-cosh in the county of Kerry, being driven up by a great storm in the Month of October last 1673; having two heads, one great head (out of which sprung a little head two foot, or a yard from the great head) with two great eyes, each as big as a pewter dish, the length of it being about nineteen foot, bigger in the body than any horse, of the shape represented by this figure, having upon the great head ten horns, some of six some of eight or ten, one of eleven foot long, the biggest horns as big as a man’s Leg, the least as his wrist, which horns it threw from it on both sides; And to it again to defend it self having two of the ten horns plain, and smooth that were the biggest and middle horns, the other eight had one hundred Crowns a peece, placed by two and two on each of them, in all 800 crowns, each Crown having teeth, that tore anything that touched them, by shutting together the sharp teeth, being like the wheels of a watch, The Crowns were as big as a man’s thumb or something bigger, that a man might put his finger in the hollow part of them, and had in them something like a pearl or eye in the middle; over this Monster’s back was a mantle of a bright Red Colour, with a fringe round it, it hung down on both sides like a Carpet on a table, falling back on each side, and faced with white; the crowns and mantle were glorious to behold: This monster had not one bone about him, nor fins nor scales, or feet, but had a smooth skin like a man’s belly. It swoom by the lappits of the mantle; The little head it could dart forth a yard from the great, and draw it in again at plesure, being like a hawk’s beak and having in the little head two tongues by which it is thought it received all its nourishment: when it was dead and opened the liver wayed 30 pound. The man that took it came to Clonmel the 4th of this instant December, with two of the horns in a long box with the little head, and the figure of the fish drawn

on a painted-cloth, which was the full proportion of it, and he went up to Dublin, with an intent to shew it to the Lord Lieutenant."

Letter No. 4, manuscript.

"In a Letter from a very Sober person in Dublin dated 27th of December 1673.

"Yesterday I went to See part of the Sea Monster, which was taken at Dingle, viz. the two Bigg Hornes and the little head, the Hornes are neare foure foot long, and about six inches thick towards the Root, and full of little Coronetts about the Compass of a groat, and teeth in every one of them, they were fixt to the Horne, with a string like a Veine, by which I conceive they received Nourishment, rather then that the nourishment should be conveyed through them downe the Hornes to the Beast. The head was not soe bigg as my fist, the mouth and two hard shells upon it very black and shap'd somewhat like to an Eagles Bill, but broader; In the mouth there was two tongues, and (as the Man declared that tooke this monster) the Beast had naturall power to draw this head in or putt it out of the Body as necessity required."

Another broad-sheet apparently printed in Dublin announces the exhibition of—

"A Wonderful Fish or Beast that was lately killed, by James Steward, as it came of its own accord to Him out of the sea to the Shore, where he was alone on Hors-back at the Harbour's Mouth of Dingle-Icoush, which had two heads and Ten horns, and upon Eight of the said Horns about 800 Buttons or the reasemblance of Little Coronets; and in each of them a set of Teeth, the said Body was bigger than a Horse and was 19 Foot Long Horns and all, The great Head thereof Carried only the said ten Horns and two very large Eyes, And the little Head thereof caried a wonderful strange Mouth and two Tongues in it, which had natural power to draw itself out or into the Body as its own necessity required, there is several other very remarkable things to be observed in the said Monster, and in particular it had a Redish Coloured wrapper or Mantle growing and Sticking fast to the back thereof, and the Laps on both sides was loose, which was white within and Red without. Therefore all persons who desires to be further satisfied

in the truth hereof, may see the said litle head and two of the said Horns with the Coronets thereon, and a draft of the whole as it appeared altogether alive, with a certificate from responsible hands, and a real Relation of all the passages, witnessing the truth thereof, to their further admiration, at the Three Castles on the Lower end of Cork Hill.\*

“Allowed by Order.”

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**Hairy-armed Bat in the County Wicklow.**—Permit me to place on record the occurrence of the hairy-armed bat (*Scotophilus Leisleri*) in the County Wicklow. I shot a fine old male here yesterday evening. This bat is now recorded as having occurred in the following counties:—Armagh, Down, Dublin, Wicklow and Kildare.—*Richard M. Barrington; Fassaroe, Bray, June 20, 1875.*

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**The Somersetshire Moors in the Spring.**—The wild moor country is at all times of the year attractive to a naturalist. Birds, animals and insects are seen there not to be met with on the enclosed and tamer plains. The air is lighter, and in summer time is perfumed by the blossoms of the heather and furze. Numerous wild flowers peculiar to the district delight the eye. Then there is the perfect solitude, and the silence, the last broken from time to time by the crow of the black cock or the wail of the peewit. Towards the end of May I had an opportunity of visiting a wild part of the Somersetshire Moors. Fishing was my object; but a bright sun burned upon the water, and sport was not very good. I soon turned my attention to the birds around me, and was more particularly led to do so by a splendid male Montagu's Harrier flying over my head, as I was wading up the clear moor stream, so low above me that I distinctly saw the chestnut band on the under side of the wings, by which this species is to be known (among other distinguishing marks) from the hen harrier. The beautiful bird alighted on the hillside immediately above the stream, within a few yards of where I was standing. Carrying my eyes a little further on, I saw a large reddish bird perched upon a dead ash tree, which I recognised as the female; and in a moment or two she was joined by her mate. As I saw both birds near the same spot on my return down the stream in the afternoon, it is probable that they had their nest at no great distance. Besides the harriers, which formed the great sight of the day, the abundance of bird-life made my excursion most interesting. Ring ouzels chattered at me from the heather-clad slopes; whinchats were numerous, perched on the tops of the furze;

\* I must not omit to acknowledge my obligation to my friend Mr. W. S. Keogh, the present learned Acting Librarian, R. D. S., who first drew my attention to these interesting documents.—*A. G. M.*

wheatears ran about on the open spots; higher up the moor peewits were wheeling about with that restless flight which proclaims the proximity of their nests; cuckoos were plentiful and vociferous; and all along the stream water ouzels, common sandpipers and gray wagtails abounded, and gave an appearance of life to the scene which would charm any lover of birds. The pied flycatcher was another denizen of the moor I looked long and narrowly after, and at last was gratified by seeing one sitting on a tuft of heath not far from the stream.—*Murray A. Mathew; Bishop's Lydeard, May 29, 1875.*

**Birds in my Garden.**—A note respecting the birds we see so near a large town—the part of Edgbaston in which I live being within two miles of the centre of Birmingham—may be of interest to you. At the bottom of my garden is a little pond pretty much grown over with pond-weed, and has abundance of reed (*Arundo*) surrounding it. On this pond are usually a pair of moorhens that bring up an annual brood, the latter being despatched further off to seek their fortunes soon after they grow up—if indeed they escape the cats until that period. The moorhens have a lively “clucking” note that we often hear, but in addition to this I have heard for several nights lately a long guttural “c-r-a-k-e” repeated every twenty seconds or so. The sound does not seem to me rasping enough for the landrail, and appears to proceed from the water’s edge: it is continued for hours after dark, but is scarcely if ever heard until evening. Last autumn the pond above mentioned was frequented by a kingfisher, and in the winter a pair of wild ducks visit it occasionally for a few hours or days, affording a neighbour a chance of a shot—hitherto unsuccessful, I am happy to say, as far as I know. I am not aware of any other water birds, but on two occasions I have seen a flock of gulls pass overhead. The last time there were only two—large gulls—which seemed to have lost their bearings. One day two swans, apparently from the direction of the town, flew about fifty feet overhead, making a great noise. A few evenings ago I heard a woodpecker, and the cuckoo usually comes within earshot. A pair of magpies built for some years in a tree not far away, but I have not seen them for two years or so. In the late severe winter, whilst the snow lay so long on the ground, the rooks came to pick up some suet placed on the lawn twenty yards from the house: they were very wary, nevertheless, and sat in the trees a long time considering whether it was safe to venture or not; the moorhens joined them, and other smaller birds to pick up crumbs. The moorhens appeared to use their legs with difficulty, and frequently rested their bodies on the snow. In that same weather a polecat came through the front gate once or twice, looking for anything near the house, and last autumn I saw a stoat at the back. There are no trees of much size in my garden, but wood pigeons often build in some larger ones a little way beyond the lodge. Blackbirds and thrushes have, I think, increased in numbers of late years,

notwithstanding their extreme folly, so to speak, in the choice of places for their nests. This year a thrush built in a low holly close to the back door, frequented diurnally by butcher-boys, &c., but their greatest enemies are the cats, who eat the young ones out of their nests. I keep a fine buzzard in a cage, and I feel mightily disposed to give one of them a taste of his talons, but do not feel quite certain how the battle might go: he got out the other day and pounced upon a smart Scotch terrier, making him cry out vigorously for the man to come to the rescue. Swallows build in a shed in the stable-yard, about ten feet above the head of a retriever, and where there is constant passing. Starlings build about the chimneys. Blue and cole tits are frequent in the winter, and the goldcrest is seen now and then. One morning last week a great scurry and screaming of birds came almost close to my head as I was gardening, and I saw on their rising that it was a sparrowhawk pursued by swallows and swifts; they chased him a little longer, when he rose higher and they left him, and he sailed off majestically but discomfited: this is the only time I remember seeing a hawk so near the house. Whilst referring to water birds, I might have mentioned that one evening, not long ago, a great crested grebe flew against the spire of a chapel in the town, and was killed by the blow. I could mention rare birds that have been shot near the town, but confine myself to my garden, which is distinctly suburban, not rural. There are also whitethroats, chaffinches, greenfinches—not numerous—and gray wagtails. These, I think, make up our list, except the few very common birds, of which the omnipresent sparrows are the most numerous. What is the good done by sparrows to themselves or their human friends when they bite off the crocuses? I never could see anything in it but mischief—a sad repayment for the supply of winter crumbs. Why is it that some of my sparrows wear no tails? For years I have watched and observed some of them destitute of that usual and comely appendage. It cannot be moulting in winter—hardly can it be cats. I look for a Darwinian race of tailless sparrows, but I do not think they multiply of late. I can, however, generally discover one or two after observing a short time. They fly well enough, but look odd on the wing. Possibly this may be not an unusual thing, but I never saw it noticed: better ornithologists than I am may be familiar with the fact.—*W. Southall; Birmingham, June 11, 1875.*

**Climate and Ornithology of Achill.**—In the June number of the 'Zoologist' (S. S. 4494) you have expressed a wish that I should state the supposed inducement of various birds to visit Achill and remain for the winter. From close observation for the last twenty years, I have no doubt that it arises from the climate being much milder than it is even a few miles inland, owing partly to the influence of the Gulf-stream on this coast, and also to the prevailing wind being from the south and west, which comes over the Atlantic Ocean and is tempered by it. I believe the birds come to escape

the long-continued frost and snow, just as woodcocks and other migratory birds come to a milder climate than that in which they breed during the summer. I will give you a few proofs of this equality of temperature from both animate and inanimate sources, and the effects of it. I have been to several of the sanatoriums of the world, such as Madeira, Pau, &c., but Achill is almost the only place where that blight of Scotland and England, consumption, is unknown: this I attribute to the climate. I may also say that I have not known a case of distemper in dogs, although my experience has been large. Various kinds of trees and shrubs flourish here which will not grow to perfection in other parts of Ireland. I have fuchsias over sixteen feet high and large in proportion: the rarest kinds grow freely out of doors, and flower as well or better than in a greenhouse. Mr. G. Clive, M.P., who is a near neighbour of mine, has some splendid varieties at his summer lodge in Ballycroy, all growing in the open air, with camellias, azaleas, &c. Some years ago a live turtle was brought to me, which was washed ashore at a village on my property. It may, however, have been on board a ship or carried round by the Gulf-stream, as quantities of timber is. The turtle came in at Christmas. I have seen as many as a hundred wild swans on the Keele Lake, in Achill, during a hard winter: there were nine last year, which was comparatively mild here: they stay almost a month or six weeks, if undisturbed. I last year shot a grosbeak, and this year one out of a flock of snow buntings, both of which I had stuffed. The Cornish red-legged chough breeds and remains here: they are to be seen in large flocks, and are most useful birds, as they destroy vast numbers of wire-worms, and do no harm whatever: they are most interesting as pets. The golden and sea eagle build here, as also the peregrine falcon. I have a very fine specimen of the golden eagle, which I have had for twenty-one years, and which this spring laid two eggs. The hawks, in addition to the falcon before named, are the merlin, sparrowhawk and kestrel. The ring ouzel and water ouzel are common; the former most destructive to fruit, the latter to fish, the spawn of which he can pick up from the bottom of a pool as a chicken would oats on dry land. The common birds of the country come here at the end of October and remain till March, or if the weather is severe elsewhere, till April. I saw the last woodcock on the 5th of April. Achill is separated from the mainland of Ireland by a narrow Sound about a hundred and fifty yards wide in one place, where there is a ferry. It bears the same affinity to Ireland as Anglesea does to England. The mountains rise to 2220 feet, and some of the perpendicular cliffs are 1000 feet. Great varieties of sea birds build here and on the rocks out at sea. Achill is easy of access, as a mail car runs daily from Westport to Dugort, which is nine miles from the Sound, in the Island. The Sound of Achill is frequented by the merganser, the great northern diver, small black guillemot, common guillemot, razorbill, puffin, and many varieties of

cormorant and gull.—*William Pike; Glendarary, Achill Sound, Westport, June 10, 1875.*

**Foresight of Birds.**—The foresight of birds of a coming epidemic of cholera has been occupying the attention of a German journal, the 'Jardin Zoologique.' The journal notes that a few days previous to the terrible ravages of cholera in Galicia in 1872, all the sparrows suddenly quitted the town of Przemysl, and not a single bird returned until the end of November, when the disease had entirely disappeared. The same circumstance was remarked in Munich and in Nuremberg. During the attacks of cholera at St. Petersburg and Riga in 1848, in Western Prussia in 1849, and in Hanover in 1850, every swallow and sparrow forsook the town and remained absent until the eradication of the scourge. Might not such a coincidence serve as a warning and give time for measures to be taken against the disease? Sanitary Boards should take note of this.—'Graphic,' August 29, 1874.

**Notes from Aldeburgh, Suffolk.**—I was at Aldeburgh on Thursday and Friday, the 13th and 14th of May, and as usual looked carefully to see what birds were about. The terns, which usually breed on the shingle by the lighthouses are there this year in considerable numbers, and I was pleased to see an unusual quantity of the lesser tern. From being comparatively unmolested, they were very tame, sometimes coming within ten or fifteen yards. Early on Friday morning I took a walk round the meres, armed with a good telescope: there were a lot of gulls of various species, chiefly in immature dress, with one or two specimens of the blackheaded gull in full plumage among them. It was rather too early for the spring waders, and the only one I saw was a very beautiful gray plover in perfect summer dress. Coots were breeding in the further mere in abundance; I counted between twenty and thirty swimming about. I also saw a beautiful pair of pintails, which I was enabled to watch carefully through my glass: their long thin neck and slender form give them a very pretty appearance in the water: I do not suppose they ever breed so far south. But the most distinguished visitor by whose presence Aldeburgh has been favoured this year was a white stork: he has been seen on several occasions by persons quite qualified to recognise the species. Unluckily I was unable to reply in the affirmative to the question of the day, "Have you seen the stork?" He was approached one day by some boys, whose curiosity probably saved his life, for on their going to report to a friend of mine—an enthusiastic naturalist—of the wonderful bird they had seen, they were obliged to admit that they had put him up. I have not seen an account of the capture of a white stork in any obituary of rare birds, so I should say that by this time he has safely returned to his "own fireside," or rather his own chimney top, in Holland. Eggs either of the garganey or teal have been taken this year: that the former species does breed in East Suffolk

Mr. Rope has ascertained (see Zool. S. S. 4036). Besides, many young garganeys are met with in August during fighting time.—*Julian G. Tuck; Old Vicarage, Ebbwston, near York.*

**Spring Migrants.**—A swallow first seen on the 16th of April, being a week or so later than usual. A whimbrel observed on the 3rd of May and a turtle dove on the 4th. On the 5th of May young rooks had taken wing—rather an early date. On the 6th the chiffchaff was found nesting near Steepphill—an uncommon occurrence here, as this species (as well as the willow wren) usually goes inland soon after arrival. No martins were seen till the 10th of May, when three were observed, and a swift a day or two later. Though some starlings about the house had young by the 10th of May, others—probably last year's birds—had but commenced building. Two fresh-laid eggs found on the lawn had the greater part of their contents scooped out, but whether by starling or sparrow I could not ascertain. On the 22nd young blackbirds were observed about the garden, also the young of the pied wagtail.—*Henry Hadfield; High Cliff, Ventnor, Isle of Wight, May 25, 1875.*

**Arrival of Spring Birds in Nottinghamshire.**—April 4th, chiffchaff; 16th, willow wren; 17th, swallow; 18th, sand martin; 20th, redstart; 22nd, whinchat; 23rd, tree pipit; 24th, house martin; 29th, white-throat; 30th, cuckoo; May 2nd, sedge warbler; 3rd, grasshopper warbler; 6th, blackcap warbler, wheatear, swift, nightjar; 7th, corn crane; 9th, turtle dove; 16th, common flycatcher. As yet I have not seen either the yellow wagtail or common sandpiper, although there is a stream and several ponds here.—*J. Whitaker; Rainworth Lodge, near Mansfield.*

**Peregrine Falcon in Nottinghamshire.**—A specimen of this fine hawk was shot during the first week of April at Kneesal Green. The bird was a male, and in good plumage. When riding near here on Saturday, the 15th of May, I saw three blackheaded gulls flying over the forest,—rather a curious thing to see them so far from their breeding haunts at this time of the year.—*Id.*

**Hobby preying on Bats.**—I have just mounted an adult female hobby, which was very kindly sent to me, in the flesh, by Mr. H. A. Hamilton, of Balbriggan, Ireland. The following are the particulars of its capture;—Mr. Hamilton first saw the bird on Sunday, June 6th, at 1.30, in the act of picking a small bird, on a round flower-bed in his garden: this is in the town of Balbriggan, near the church. She flew away, and Mr. Hamilton, seeing it was a strange bird, watched next day and shot her near the same place. The size of this specimen is—length twelve inches and three-quarters; expanse of wings when spread two feet six inches and a half; wing from carpal joint ten inches and a half; wings when closed extend half an inch beyond the tail. There were no signs of breeding in this bird, although in good condition, and the ovaries seemed quite healthy, so I

conclude she had not found a mate in Ireland. On opening the stomach I found what I first took for the remains of a mouse rolled into a pellet, but on closer examination I found two skulls with the under jaws attached and some wing-bones still holding together, which, if I mistake not, proves that this hobby's last supper had consisted of two bats. I have enclosed these remains for your inspection, knowing that you are much interested in the bat tribe, and I should like to hear if you have ever known them stowed away in a corner like this before. In the 'Zoologist' (S. S. 3350) I find mention is made of a foreign species (*Machæramphus Anderssoni* of Gurney) which feeds exclusively on bats, but I presume it is new matter on the food habits of our hobby. Professor Newton, in his new edition of Yarrell's "Birds," says of the hobby that, "In Ireland there seems to be but two instances of its occurrence that can be trusted; one recorded by Thompson, and a second about three years since in Tipperary, the specimen being in the Museum of the Royal Dublin Society."—*John Sclater; Castle Eden, Durham, June 18, 1875.*

**Variety of Blackbird.**—I noticed the following curious variety of the blackbird last week: the bird was an old male. Round its neck, the part nearest the head, was a ring of pure white. I have never noticed before any departure from the usual colouring in this species. The ring was not a plain one, but formed of spangled feathers, distributed about anyhow.—*W. Thomas; Surbiton Villa, Surbiton.*

**Innocent (?) Rooks.**—Till lately I was impressed by the popular delusion that, whatever delinquencies magpies, graybacked or carrion crows might commit, rooks were "innocent, harmless creatures, mildly assisting the labours of the farmer." Alas for facts! My children amused themselves a few days since by watching three rooks robbing some plovers' nests near our lake. They would purloin an egg in spite of the vociferous entreaties to the contrary of father and mother bird, carry it to a little distance, suck it at their leisure, and then return for another epicurean morsel. So absorbed were they in their pleasing pastime that, though they were chased by my children each time they were approaching a nest, they secured their *bon bouche* before they took to flight.—*F. G. Battersby; Cromlyn, May 14, 1875.*

**The Cuckoo.**—On the 23rd of April, in the vicinity of the extensive heaths in this neighbourhood, I saw seven or eight large birds at a distance, and at a considerable elevation over the heaths, near a spot where the lapwings are nesting. The general appearance and movements of these birds attracted my attention, as they seemed to be playing in the air something like rooks, and not at all like the noisy lapwings, whose parti-coloured plumage and tumble-down flight are so well known to every lover of birds, even at a distance. The length of tail, too, of the birds in question set me thinking what they could possibly be, and I was almost inclined to put

them down as kestrels. As I approached nearer, however, I found they were not kestrels, but cuckoos, and after watching them some time the party dispersed, one this way and another that, and there could be no possible mistake about the matter, as two of them passed over my head, and, settling on a tree at no great distance, gave utterance to their well-known note. I am quite at a loss to account for this congregation in the sunshine. Has it been observed before, and if so, what is the purpose of it? Is it possible these were newly-arrived individuals reconnoitring their future abode? or do they thus meet in the air and pair? I first heard the notes of the bird on the 20th of April, and the wryneck, which is said to be its predecessor, on the 15th, so that these could not have been the first arrivals; besides their behaviour was very different from what we should have expected from birds just arrived. Some few years ago I recollect seeing some six or seven cuckoos, about the middle of April, settled in a meadow, not in a flock, but scattered over the field, all resting on the ground, as if weary: these, I supposed, had just come to us from abroad, but their attitude and movements were very different from those of the frolicsome party I saw a few days since. What led me to remark this more closely is that I have always understood, both from my friends as well as my own scanty powers of observation, that the cuckoo is, like the robin, of a very unsociable nature and disposition. I certainly had never seen more than a pair congregated before, and indeed I had almost dubbed it a "feathered anchorite." Does the cuckoo always elevate and spread its tail when it utters its well-known notes? I have been very near to the bird once or twice, and, as a rule, it seemed to do so whenever it sang—in fact, the frame of the bird seemed agitated during the whole performance, for, of course, it is well known that, besides "cuckoo," it has a harsh unmusical twitter which it sometimes gives vent to. The newspapers report that the cuckoo was heard this season at the end of March. I must own to a certain amount of scepticism on the point, especially as this season has been so unusually cold and unfavourable to birds which love summer weather. For the past nine years I have noted the arrival of our summer visitors, and the earliest date I ever heard the cuckoo was the 14th of April, 1869. It generally arrives here between the 14th and 20th.—*G. B. Corbin.*

**Stock Dove in a Magpie's Nest.**—On the morning of the 10th of June I went to visit a magpie's nest, expecting to find a hawk had taken up its abode in it. Having nearly reached the nest, which was built high up in a tree, a stock dove suddenly flew out: the bird flew away slowly, and seemed to look back as she was flying, as though loth to leave. The nest I found to contain two eggs of the stock dove. This is the second instance I have known of this species incubating in a magpie's nest, and in both cases the nests were those of the year. I have never seen it stated that the stock dove builds in the nests of other birds: I have generally

found its nest in pollard trees.—*Thomas Gillah*; 9, *Nunthorpe Terrace, York.*

**Bitterns in South-Western Hampshire during the Winter of 1874-5.—**

The unusual appearance of the common bittern during the past winter has been commented upon more than once. I have been at some trouble to collect the following well-authenticated instances of its occurrence in this neighbourhood, which I trust will not be uninteresting:—One was killed in Christchurch Harbour in December; one at Bisterne, near Ringwood, on the 24th of December; one at Sopley, near Christchurch, on the 5th of January; one at Ringwood on the 11th of January; one near Christchurch on the 12th of January, and another seen at the same time; one near the Osmamby ford-stream, New Forest, on the 14th of January; one on the borders of the New Forest at Fordingbridge on the 20th of February; one at Bisterne, near Ringwood, on the 25th of February; one near Ringwood on the 4th of March; and two at Keyhaven, near Lymington, of which I am unable to obtain the exact date. I have heard of several others having been seen or killed, but I was unable fully to authenticate them, although I have no doubt of their occurrence. Those in the foregoing list either came under my own observation or that of friends, to whose kindness I am under obligation for the information. I had never seen the bird before in the flesh, and my friend Mr. Haydon, of Fordingbridge, informs me that it is some twenty years ago since a bittern was killed in his neighbourhood, but that on the date in question three pairs were shot in the vicinity. Most of the specimens of last winter were shot in the valley of the Avon, although two, if not more, were killed in or near the forest. I had the pleasure of dissecting the specimens obtained on the 24th of December and 11th of January, and the latter proved rather an interesting one: in its stomach was an eel fifteen inches long and a pike ten inches in length; the head of the pike was partly digested, otherwise it and the eel were quite perfect; a quantity of river-weeds were in the stomach with the fishes, evidently taken and swallowed with them; in fact, it seemed impossible that the stomach could have contained so much, and it was no wonder that the bird was “dull and heavy”—as the person who shot it said—after such a meal. On dissecting the head of this bird I found two leeches buried deep in the nasal organs near the eyes. Whilst skinning the bird I saw more than once what I believe was a dipterous parasite, similar to that I described (*Ornithomyia avicularia*) in the ‘Entomologist’ (Entom. vii. 137). I had never before seen similar parasites upon water-fowl; indeed I am inclined to believe that they are not so subject to these torments as are their less aqueous relations of the feathered tribes. Having read of the esteem in which the flesh of the bittern was formerly held, I resolved to try it, although the strong oily and fishy smell of the bird during the process of skinning was not very inviting, and the taste of

the flesh when cooked did not increase my desire to dine off bittern.—  
*G. B. Corbin.*

**Longevity of a Wild Duck.**—It may be worth recording that in April last a tame wild duck was killed by an accident at Northrepps, which was known to be twenty-two years old. Last year it was accidentally injured, in consequence of which it became somewhat inactive, and ultimately was killed by a horse treading on it.—*J. H. Gurney; Northrepps, Norwich, June 21, 1875.*

**Blackheaded Gulls at South Kirkby.**—I have to record the capture at South Kirkby, about seven miles from here, of a pair (male and female) of blackheaded gulls (*Larus ridibundus*) in breeding plumage. I think their occurrence so far from their usual haunts, at this season, is somewhat remarkable. On Whit-Tuesday I saw a pair of large gulls fly over the town (Barnsley), but at too great a distance to distinguish the species.—*W. J. Cope; Barnsley, June 23, 1875.*

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**Fruit-eating Snakes.**—In the 'Zoologist' for April (S. S. 4392) Messrs. R. B. and J. D. S. Woodward's statement regarding snakes subsisting on wild berries and fruits, as well as on the eggs of birds, is discredited by Mr. Newman, and I think justly. There are certainly several accounts given of vegetable-eating snakes; but as far as I have noticed such statements are not given with the authority of personal observation, but with such remarks as "the natives declare they feed on so-and-so," "it is generally understood they devour such and such berries and plants," or "I have been informed that such and such a snake commonly feeds upon berries and fruits." Now this kind of information is to a scientific man next to valueless; and until we can obtain the authentic record of a competent naturalist, advanced upon a basis of actual observation of his own, I, for one, will doubt the vegetable appetites of snakes. In the first place, this supposed appetite is certainly not a characteristic of any one of the sub-orders of the Ophidia, as we shall see on glancing over them and their specific food. Thus, take the five subordinate groups of the order Ophidia (as arranged by Dr. Günther), and find what the characteristic food of each of the sub-orders consists of:—

Sub-order.	Food.
I. Burrowing Snakes.	Small invertebrate animals.
II. Ground Snakes.	Terrestrial vertebrate animals.
III. Tree Snakes.	Birds, and animals which frequent trees, as the squirrel, &c.; and only a few species on eggs.
IV. Fresh-water Snakes.	Fishes, frogs, crustaceans, &c.
V. Sea Snakes.	Marine fishes.

But although the partiality for vegetable food is not a characteristic of any sub-order or family, it is of course possible that some one or more varieties may be endowed with it. But from what knowledge we already possess, and the want of any corroborative statements grounded on personal observation from naturalists who have explored the habitat of these very snakes, I certainly think we have a good warrant for misdoubting those statements which are adduced only on the authority of natives and unqualified persons in general. The nearest approach to the so-called vegetable-eating snakes are the one or two varieties of the tree snakes which feed usually or occasionally on eggs. But it is in those very ophidians that we find the strongest corroboration of their non-vegetable appetites, for many of this species have a peculiar conformation of the vertebra of the neck, from which spring several spinous projections, the design of which is to break the shell of the egg before it undergoes deglutition; and in this contrivance of Nature we can see plainly that berries and other vegetable substances are not intended to furnish food for the snakes in question, for then there would be no necessity for such an alteration in the structure of the neck vertebræ as we have just seen there is.—*W. Sharp; Glasgow.*

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**Ray's Bream at Penzance.**—Ray's bream has again been taken here. A full-sized specimen was this morning found alive, but exhausted, floundering in shallow water off our Western Beach, in the town here. In its stomach was a cuttle-fish about four inches long. It may be noted that the fish was found on the abatement of a heavy gale of wind from W.S.W.—*Thomas Cornish; Penzance, June 12, 1875.*

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**Zoological Society of London: Additions to the Menagerie during the Month of April, 1875.**—N.B. The day of the month when the specimen was obtained precedes its name; the number of specimens, if more than one, also precedes the name. When a species is new to the collection an asterisk (\*) is affixed to the name; the country of which the species is native follows the name; the donor's name follows the name of the country, except when the specimen has been purchased; the part of the Gardens where the specimen is exhibited follows the donor's name.

April, 1875.

2. Redbellied wallaby (male), Tasmania; presented by Mr. B. G. Corney; kangaroo sheds.
- „ Vulpine phalanger, Australia; by Mr. Corney; marsupial house.

6. Green monkey (male), West Africa ; by Mrs. Lange ; monkey house.
7. Golden eagle, Spain ; by Mr. J. A. Wright ; eagle aviary.
- „ Two shoveler ducks (male and female), Europe ; duck pond.
8. Bluefaced green amazon, St. Lucia, West Indies ; parrot house.
- „ Porto Rico pigeon, St. Vincent ; western aviary.
- „ West Indian agouti (young), St. Vincent ; rodent house.
- „ Barn owl, St. Vincent ; owl cages.
- „ Two Leadbeater's cockatoos, Australia ; by Mr. G. L. Prendergast ; parrot house.
9. Vervet monkey (male), West Africa ; by Miss E. Sission ; monkey house.
- „ Ocelot (male), South America ; small mammal house.
- „ Blue and yellow maccaw, South America ; parrot house.
10. Collared fruit bat ; born in the menagerie ; monkey house.
12. Australian dingo ; by Zoological and Acclimatisation Society of Victoria ; carnivora dens.
- „ Impeyan pheasant (male), Himalayas ; by Capt. J. E. Whitting ; pheasantry.
- „ \*Syrian bulbul, Palestine ; by Mr. E. T. Rogers ; western aviary.
- „ Silky hangnest, La Plata ; by Mrs. Arabin ; western aviary.
13. Crested porcupine, West Africa ; by Mr. G. W. Venderkist ; rodent house.
- „ Rufous tinamou, Brazil ; by Viscount Hill ; western aviary.
- „ Serval, Africa ; small mammal house.
14. Two crab-eating raccoons, Demerara ; by Mr. J. R. H. Wilton ; small mammal house.
- „ Bullfrog, Nova Scotia ; reptile house,
- „ Patas monkey, West Africa ; monkey house.
- „ Quica Opossum, Brazil ; marsupial house.
- „ Red ground dove, South America ; western aviary.
- „ Brown milvago ; falcon aviary.
- „ Tuberculated lizard and Teguxin lizard ; reptile house.
- „ Red and yellow maccaw ; deposited ; parrot house.
- „ Sharpnosed crocodile, Jamaica ; by Capt. Drummond ; reptile house.
16. Two green-necked peafowls (male and female), Java ; peafowl aviary.
17. Common swan (male), Europe ; duck pond.
- „ Ten green lizards, Jersey ; by Mr. G. E. Drage ; reptile house.
- „ Five lumpsuckers, three great pipefish, and a deep-nosed pipefish ; British Seas ; by Mr. A. H. Smee ; fish house.
19. Common quail, Europe ; by Miss H. Miller ; western aviary.
- „ Great kangaroo (male), and red kangaroo (female) ; born in the menagerie ; kangaroo sheds.
- „ Persian gazelle (female) ; by Mr. C. Czarnikow ; gazelle sheds.

19. Two silky marmosets (male and female), Brazil; monkey house.
- „ Ocelot, South America; marsupial house.
- „ Three saffron finches (two males and a female), two tropical seed finches, two bluish finches,\* two reddish finches,\* nine lined finches,\* and a half-white finch;\* South America; parrot house.
- „ Palm tanager,\* and redheaded cardinal; South America; parrot house.
20. Four roughlegged buzzards, Europe; kites' aviary.
21. Crowned eagle, Senegal; received in exchange; new falcon aviary.
22. Blackhanded spider monkey (female), Central America; by Capt. A. M. Drummond; monkey house.
- „ Gray Ichneumon (male), India; by Mr. H. M. Grellier; small mammal house.
- „ Great kangaroo (male), New South Wales; by Mr. Carleton V. Blyth; kangaroo sheds.
- „ Three yellow-winged blue creepers, South America; parrot house.
23. Macaque monkey, white variety (female), Samar. Philippines; by Mr. J. Ross; monkey house.
- „ Two kinkajous (females), N. Venezuela; by Mr. Charles Campbell Downs; small mammal house.
- „ Golden eagle, Europe; by Mr. W. P. Warner; eagle aviary.
- „ Indian kite; by Rev. S. R. Wilkinson; kites' aviary.
24. Slender loris (male), Ceylon; monkey house.
- „ Twelve plaice, three viviparous blennies, three Cotti, and one spotted gunnel; British Seas; by Mr. A. H. Smee; fish house.
26. Pinche monkey (female), Cartagena, U.S. of Columbia; monkey house.
- „ Hoffmann's sloth (male), Panama; sloths' house.
- „ Sharpnosed crocodile, Rio Magdalena, U. S. of Columbia; reptile house.
- „ Common blackbird and common thrush, Europe; by Mr. G. Rogers; western aviary.
- „ Cardinal grosbeak (female), North America; deposited; western aviary.
- „ Small Hill mynah, Southern India; deposited; parrot house.
- „ Pigtailed monkey (male), Java; by Miss H. E. Humphreys; monkey house.
- „ Mouflon (female), Corsica; deposited; top yard.
- „ Reddish finch, South America; by Mr. J. L. Symon; parrot house.
- „ Six Chilian pintails; bred in the Gardens; duck pond.
- „ Ground hornbill, West Africa; received in exchange; eastern aviary.
29. Four upland geese; bred in the Gardens; duck pond.
- „ Concave-casqued hornbill, India; received in exchange; eastern aviary.
30. Bonnet monkey (male), India; by Mr. C. Hajee; monkey house.
- „ White-cheeked capuchin (male), Brazil; by Mr. P. W. Bennitt; monkey house.

30. Patagonian conure, La Plata and Chili ; by Mrs. Cabry ; parrot house.  
 ,, Eight garganey teal (four males and four females), Europe ; received  
 in exchange ; duck pond.  
 ,, Greek land tortoise, Europe ; by Mr. J. R. Lane ; reptile house.

The additions to the Society's Menagerie during the month of April were 157 in number : of these seventy-two were acquired by presentation, fifty-four by purchase, eleven by exchange, fourteen by birth, and six were received on deposit. Amongst these are specially noticeable—

1. A Syrian bulbul (*Pycnonotus xanthopygos*), presented by Mr. E. T. Rogers, April 12th. This species is new to the Society's collection.

2. A collection of small finches from South America, purchased April 19th, amongst which are examples of several species (*Spermophila cærulescens*, *S. aurantia*, *S. lineola* and *S. hypoleuca*) not previously exhibited.

3. An albino of the common macaque (*Macacus cynomolgus*) or of the Philippine form of this species (*M. Philippinensis*), brought from Samar, Philippines, and presented by Mr. J. Ross, April 23rd. We have now a pair of these albino monkeys in the Menagerie.—*P. L. Sclater.*

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## Proceedings of Scientific Societies.

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### ZOOLOGICAL SOCIETY OF LONDON.

June 1, 1875.—Dr. A. GÜNTHER, F.R.S., Vice-President, in the chair.

Mr. Sclater made some remarks on the most noticeable of the animals seen by him during a recent visit to the Zoological Gardens of Rotterdam, the Hague, Amsterdam, Antwerp and Ghent.

Mr. Sclater exhibited the typical specimen of his *Centropsarmirus*, and stated that on a more careful examination of it he had come to the conclusion that it was a made-up skin.

Mr. Edwin Ward exhibited the two lower canine teeth of a hippopotamus from St. Lucia Bay, South Africa, obtained by the Hon. C. Ellis, and supposed to be the largest ever obtained. They measured from end to end round the outer curve thirty inches.

Mr. G. E. Dobson read a paper on the genus of insectivorous bats named *Chalinolobus* by Dr. Peters, and gave the descriptions of several new or little-known species of this group, which he proposed to divide into two sections, *Chalinolobus* and *Glauconycteris*.

A communication was read from Mr. Henry Adams, wherein he gave the descriptions of two new land shells. These were proposed to be named respectively *Eurycratera Farafanga*, found on a sandy plain in the S.W. of

Madagascar, near the Farafanga River, and *Pupinopsis Angasi*, from the Louisiade Archipelago, in the S.E. of New Guinea.

Mr. G. French Angas communicated the descriptions of three new species of shells from Australia, proposed to be called *Helix Forrestiana*, *H. Broughami* and *Euryta Brazieri*.

Mr. A. G. Butler read a paper describing several new species of Indian Heterocerous Lepidoptera.

A communication was read from the Rev. O. P. Cambridge on some new species of spiders of the genus *Erigone* from North America.

Mr. Herbert Druce communicated a list of the collection of Diurnal Lepidoptera made by Mr. J. J. Monteiro in Angola, with descriptions of some new species.

Mr. P. L. Sclater read a paper on several rare or little-known mammals now or lately living in the Society's collection, amongst which was specially noticed an apparently new species of muntjac, proposed to be called *Cervulus micrurus*.

A communication was read from Mr. E. L. Layard, containing notes on the birds observed by him in the Fiji Islands.

Lieut.-Colonel R. H. Beddome read a paper in which he gave the descriptions of some new operculated land shells from Southern India and Ceylon. The discoveries of true *Diplomatina* in Southern India and of *Nicida* in Ceylon, were alluded to as being of special interest.

Sir Victor Brooke, Bart., read some supplementary notes on African buffaloes, in the course of which he stated that he had come to the conclusion that the West African buffalo (*Bos pumilus*) was distinct from the East African form (*B. aquinoctialis*).

Mr. C. G. Danford exhibited specimens of the wild goat (*Capra Ægagrus*, Gmel.), from Asia Minor, and read some notes on the distribution, habits, &c., of that species.—*P. L. Sclater*.

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#### ENTOMOLOGICAL SOCIETY OF LONDON.

May 3, 1875.—Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

#### *Donations to the Library.*

The following donations were announced, and thanks voted to the donors:—‘*Verhandlungen der k. k. zoologisch-botanischen Gesellschaft in Wien*,’ band xxiv.; presented by the Society. ‘*Tijdschrift voor Entomologie*,’ decl. xviii., afl. 2; by the Entomological Society of the Netherlands. ‘*Annales de la Société Entomologique de Belgique*,’ tome xviii., fasc. 1; by the Society. ‘*Report of the Entomological Society of the Province of Ontario for the year 1874*;’ by the Society. ‘*Sepp's Neder-*

landsche Insecten,' decl. iii., nos. 25—36; by the Author, Dr. S. C. Snellen van Vollenhoven. 'Recherches sur les phénomènes de la digestion chez les Insectes;' by the Author, M. Félix Plateau. 'The Distribution and Correlation of Fossil Insects, and the supposed Occurrence of Lepidoptera and Arachnida in British and Foreign Strata, chiefly in the Secondary Rocks;' by the Author, the Rev. P. B. Brodie, M.A., F.G.S. 'The Canadian Entomologist,' vol. vii., no. 3; by the Editor. 'L'Abeille, 1875,' livr. 6; by the Editor. 'Nyer Slægter og Arter af Saltvands-Copepoder,' af Axel Boeck; 'Enumeratio Insectorum Norvegicorum Fasciculus I. Catalogum Hemipterorum et Orthopterorum continens,' auctore H. Siebke; 'Bidrag til Kundskaben om Dyrelivet paa vore Havbanker,' af G. O. Sars; 'Bemærkninger om de til Norges Fauna hoerende Phyllopoder,' af G. O. Sars; 'Om en dimorph Udvikling samt Generations vixel hos Leptodora,' af G. O. Sars; by the Royal University of Norway, Christiana. 'Proceedings of the Royal Society,' no. 160; by the Society. 'Newman's Entomologist' and 'The Zoologist,' for May; by the Editor. 'The Entomologist's Monthly Magazine,' for May; by the Editors. 'Illustrations of the Zygænidæ and Bombycidæ of North America,' by Richard H. Stretch; by the Author.

#### *Election of Member.*

On the recommendation of the Council, Professor Hermann Burmeister, of Buenos Ayres, was unanimously elected an Honorary Member of the Society.

#### *Exhibitions, &c.*

The President exhibited specimens of *Stylops* taken by himself, in the pupa state, in *Andrena atriceps*, at Hampstead Heath, on the 6th, 9th and 17th of April last. Mr. F. Enoch, who had been there on the 6th, at an earlier hour (between nine and ten o'clock), had been still more successful, having captured as many as seventeen males, one of which, however, was taken after 2 P. M. The President drew attention to the remarkable difference observable in the cephalothorax of the females in these specimens, as compared with those met with in *Andrena convexiuscula*, and remarked on the importance of not confounding the species obtained from different *Andrenæ*; *Stylops Spencii* having been derived by Mr. Pickering from *A. atriceps*, and figured by Professor Westwood, in the first volume of the 'Transactions' of this Society, while those obtained by Mr. Thwaites from *A. convexiuscula* had been associated with his name in a monograph of the family by the President in the volume for 1874, under the name of *Stylops Thwaitesei*.

Mr. M'Lachlan read an extract from a Report made to the Royal Society on the Natural History of Kerguelen's Island by the Rev. A. E. Eaton, who was attached, as naturalist, to the Transit of Venus Expedition to the

island. Nearly all the insects were remarkable for being either apterous or with greatly abbreviated wings. There were two Lepidoptera, one (only a larva) probably belonging to the Noctuina, the other to the Tineina. Of the Diptera, one species had neither wings nor halteres; another lived habitually on rocks covered by the tide at high water, and its larva fed upon a species of sea-weed. All the larger Coleoptera seemed to have their elytra soldered together. Mr. M'Lachlan said that the theory as to the apterous condition of the insects was, that the general high winds prevailing in those regions rendered the development of wings useless; and Mr. Jenner Weir remarked that the apterous condition was correlated with the fact that plants under similar circumstances were apetalous and self-fertilising; and hence it was supposed that the existence of winged insects was unnecessary.

Mr. C. O. Waterhouse exhibited a Chekanops, of which he had discovered two specimens under the elytra of *Passalus punctiger*, from Rio Janeiro, thus confirming the statement that these insects attach themselves to the bodies of other insects after the manner of Acari.

Mr. C. O. Waterhouse also exhibited a drawing of a Neuropterous insect of the family Ascalaphidæ, from Swan River, presenting the peculiarity of having a large bifid hump on the basal segment of the abdomen dorsally, each division of the hump bearing a crest of hairs. He believed it to be the male of *Suphalasca magna*, M'Lachlan.

Mr. Wormald exhibited a collection of Neuroptera, &c., from the neighbourhood of Yokohama, received from Mr. H. Pryer. It included several interesting species of Panorpidæ, including a new genus of that family, according to Mr. M'Lachlan; fine species of Osmylidæ, &c. Amongst the Trichoptera was a remarkable species of the genus *Perissoneura*, black with a large white spot in each wing, deceptively resembling a butterfly, especially an *Ithomia*.

A note was received from Mr. Albert Müller, stating that the galls taken by Mr. W. Cole on ash-leaves at West Wickham, as stated in the 'Proceedings' of this Society for 1874 (p. xix.), were produced by *Cecidomyia botularia*, Winnertz, and that a life-history of the fly was given by him in the 'Gardener's Chronicle,' 1870 (p. 1731), and reprinted in 'Newman's Entomologist' (v., pp. 248—250).

Professor Westwood communicated "Descriptions of some New Species of Short-tongued Bees belonging to the genus *Nomia*, Latreille"; and also a paper "On the Species of Rutelidæ inhabiting Eastern Asia and the Islands of the Eastern Archipelago."

Mr. C. O. Waterhouse communicated a description of a new species belonging to the Lucanidæ (*Prosopocœlus Wimberleyi*), by Major F. J. Sidney Parry; and also a description of the male of *Alcimus dilatatus*, by himself.—*F. G.*

*Notes on the Natural History of South Africa.*

By R. B. and J. D. S. WOODWARD, of Natal.

(Continued from S. S. 4513.)

*Parrots and Louries.*—The principal representative of the Psittacinæ is the green parrot (*Psittacus Levallantii*). It is a beautiful bird, of a shining grass-green colour; wings and tail brown, some of the feathers tipped with green; head and neck silvery gray; forehead, outer edge of wings, and the knees bright scarlet. It is thirteen inches in length. These parrots are gregarious in their habits, and congregate in large numbers in the upper districts of Natal, but we have not met with them on the coast. They frequent the highest trees, sitting quietly during the day, but as evening draws on they fly out in search of food, making the woods resound with their shrill cries. Owing to their wild nature they are rather difficult of approach, but we secured a specimen which was shot in a forest near the Umzimkulu river. The Dutch in the Free State often tame this bird, which they say can be taught to speak fluently. A farmer having kept a pair of these parrots for some time confined in a cage, gave them their liberty, on which, instead of leaving, they took possession of an old pigeon house, where they laid their eggs and reared their young: they remained for two seasons, and used to fly in at the sitting-room window to be fed. The young birds, as soon as they were fledged, left for the woods. With regard to their nidification, M. Le Vaillant says they breed in hollow trees, and lay four white eggs, about the size of those of a pigeon.

The bluewinged parrakeet (*Psittacula passerina*) is also found here: it is much smaller than the green parrot, and is rather local in its habitat. It is said to be common in the neighbourhood of Durban, where we obtained one. The colour is bluish green, the wings and crown of the head being blue.

The Touracou or Lourie (*Turacus musophagus*) is perhaps the most elegant and lovely bird in Natal: including its long tail, measuring eight inches, it is eighteen inches in length. Its plumage is dark metallic-green; face and breast green-gray; the under portions of the wings are deep crimson, which is very conspicuous when the bird is flying; its splendid crest is of the same colour as the breast, and tipped with white. We constantly see this beautiful bird

flying lightly from bough to bough, feeding upon the wild fig and other fruits plentiful in the bush. It is remarkably bold, and seems rather to court than shun the society of man: it will sometimes perch on a branch a few yards off, giving a good opportunity of admiring its graceful movements. The lourie has a curious harsh call, which it utters principally at sundown, and is one of the signs of approaching night. Last year our Kafir found a nest built in a tree, containing five white eggs. They are often killed for the sake of their flesh, which is very delicate. The natives are fond of decorating their heads with its gaudy feathers. A gentleman living near here reared a young one from the nest: he fed it on bananas, guavas and other fruits, on which it thrived well, and made a nice cage bird.

*Bush Antelopes.*—Sheltered by the cover of the thicket, and rarely quitting it for the open country, are seen the “inonka” or bush buck, the “pete” or blue buck, and the “impounsi” or duiker.

The bush-buck is a large stoutly-built animal, weighing sometimes upwards of one hundred pounds.\* The colour of the male varies from light red to nearly black, the old buck being of the darkest shade. It has a pair of fine spiral horns nine inches in length. The female is uniformly fawn-coloured, spotted on the flanks with white, and without horns. The flesh, especially of the female and young buck, is capital eating. This antelope is of a very pugnacious disposition, and at breeding time the males have furious battles. Last year one of our neighbours, when out shooting, came across the body of one that had been lately killed, the horn of its antagonist having actually penetrated its skull. When wounded they become exceedingly dangerous: we have met with many instances in which they have destroyed dogs, and sometimes they will even attack the hunter: the other day a valuable pointer was lost this way. The following incident happened to a friend of ours a few years ago:—Whilst out shooting partridges he saw a fine male buck right before him, and having nothing better he discharged his gun, loaded with small shot, at the animal, when, to his consternation, it turned on him and chased him for a considerable distance down into a deep valley, where he unfortunately stumbled into the stream below: on

\* In the March number of the ‘Zoologist’ (S. S. 4354) the weight of this animal is stated by mistake to be two hundred pounds.

looking up he saw the enraged brute within a few paces of him, but a companion of his opportunely making his appearance the buck fled. This antelope when at bay stamps the ground with its right fore foot, in the same manner as the goat.

The blue buck is a graceful little animal, not larger than the English hare, and weighing eight or ten pounds. Its colour is deep brown above and light gray beneath: the horns, which are common to both male and female, are two inches in length. It swarms in all the wooded parts of Natal, being nearly as plentiful as the rabbit at home, although it only brings forth one at a birth. This buck lies still during the heat of the day, but in the early morning or evening we can always manage to shoot one by watching near any of their runs, which are generally plainly marked. When undisturbed the blue buck is a very silent animal, but on being startled in the bush utters a short whistling noise, and when wounded bleats loudly like a lamb. It is very easily domesticated. There is one at the Drift Hotel, on the Umkomanzi river, which has been kept for some time and runs loose about the house, making no attempt to return to its wild life: it eats bread and different kinds of vegetables. We caught a "pete" in a trap ourselves, and confined it in one of the divisions of the stable. The flesh is rather dry, but with the addition of bacon makes a good meal.

The duiker, a smaller antelope than the bush-buck, is of a light gray colour; the horns are straight, and only five or six inches in length. It frequents the outskirts of the wood, living under the scrub or low bushes, and when hunted will take to the open country, where, by a series of bounds, it runs with great swiftness. In 1871 we bought a young one from a Kafir, and tried to rear it on cow's milk, but after a few days it died, owing, we believe, to the milk being slightly sour. The duiker and the other bush antelopes feed chiefly on a soft broad-leaved grass which grows under the trees, and is here called the "Guinea grass."

*A Bush Hunt in Natal.*—Large numbers of bucks and other game are annually destroyed by the natives, who during the winter months turn out with their dogs to scour the woods for meat. It may be worth while here to describe the last bush hunt which took place on our land: it occurred in the winter of 1873. Having the day previously informed our neighbours that we intended to call a hunt, we sent word to the "indunas," or heads of the principal

kraals round us, to assemble their men the next day. After an early breakfast we took our guns and started for the woods, followed by a boy carrying ammunition, as we wished to arrive on the ground before the rest of the party. After wading the river, which we felt unpleasantly cold at such an early hour, we tramped for some distance through the long grass and reeds. At last we reached our destination, and sat down on a fallen log to wait for our companions. It was a beautiful spot: in the deep green forest *Convolvuli* and other flowering creepers had formed themselves into fantastic arches more lovely than art could fabricate. The silence of this secluded retreat is broken by the notes of many birds, some of which well merit the name of songsters: the cry of the partridge issues from the scrub, and we particularly distinguish that of the lourie, horn-bill and trogon, whilst the rocks overhead resound with the bark of baboons and the cries of crows, starlings and hawks, which nest in the crevices. Monkeys may also be heard chattering in the distance, making an agreeable chorus. All the gentlemen having arrived, we each chose a good position, and impatiently awaited the Kafirs. We soon heard them chanting their wild hunting song on the hill opposite, which, mingled with the barking of dogs, grew louder every moment. Now the sport began in earnest: the natives—armed with assagais, or spears, and knobbed sticks—formed themselves in a long line, and the dogs were let loose into the bush to rouse up the game. The dogs are a species of mongrel hound who, having little scent, hunt by sight. Small bucks started up on all sides, numbers of which were easily knocked over or caught in the fangs of the dogs. It was now our chance who were stationed ahead, and our barrels were soon emptied upon the flying quadrupeds. The excitement was intense as we heard the rustling of some larger animal, and a full-grown male bush-buck burst through the thicket, breaking down everything before him. The natives had already caught sight of him, and the dogs were close upon his heels, so that it was dangerous to discharge our guns: one of our party, however, imprudently fired, killing a dog and slightly wounding a Kafir in the leg. Now came the stampede of white men, Kafirs and dogs, the unclothed natives having the advantage, the “vach-an-bechie” or “wait-a-bit” thorns terribly retarding our progress. The shouts of the natives soon informed us that the antelope was down, and on emerging into an open space, we saw them assembled around him: having been struck by a spear in the

side, the animal had been outrun and dragged down by the hounds. After some more bucks had been killed we fell in with the spoor of a herd of wild pigs—the ground had evidently been turned up by them. On we went at a tearing pace, the woods re-echoing the shouts of the savages. Scrambling up the opposite side of a deep ravine, we came up with two of the herd, one of our party having the good fortune to shoot one of them—a ferocious-looking boar of great size. Being by this time satisfied with our day's sport and pretty well fatigued, we left the Kafirs, whose voices soon faded in the distance. It was past noon, and the heat was very great, so we were glad to rest near a small stream oozing out of the gigantic cliffs which form a back to the forest. What a contrast was the stillness there reigning to the commotion just experienced! It was to us peculiarly enchanting, although to some it would have been oppressive. Nature seemed to have hushed all her creatures to sleep, and the monotonous din of insects invited us to repose. In this hunt there must have been killed nearly a hundred antelopes, as well as monkeys, rabbits, cane-rats, iguanas and ichneumons, beside the pigs mentioned. No leopards were killed this day, but in a similar hunt some time ago a large one was shot whilst lying across the branch of a tree.

R. B. & J. D. S. WOODWARD.

(To be continued.)

*Errata.*—In the March number, page 4351, line 23, for power read poison; p. 4355, line 31, for Umshintoo read Umzinto; p. 4356, line 35, for The general colour of this bird is purple read The general colour of this bird is green with purple reflections.—R. B. & J. D. S. W.

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**Correction of an Error.**—I take the liberty of correcting a slight misnomer in Messrs. Woodward's very interesting paper on the Zoology of Natal in the July number of the 'Zoologist' (S. S. 4512). The African darter is not *Plotus Anhinga*, but a very distinct species, peculiar to that continent, *P. Levillantii*, *Licht.* I believe that Messrs. Woodward are the first to record the occurrence of the demoiselle crane so far south as Natal; but I think they are in error in applying to that species (S. S. 4509–10) the names of "crowned crane" and "Kafir crane"; the first of which certainly, and the second also according to Layard, belong to a very different species, *Balearica regulorum* (*Licht.*).—*J. H. Gurney.*

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*Researches and Excavations carried on in and near the Moa-bone Point Cave, Sumner Road, in the Year 1872.* Read at a Special Meeting of the Philosophical Institute of Canterbury, New Zealand, on the 15th of September, 1874. By JULIUS HAAST, Ph.D., F.R.S., President.

*Contents of the Cave* (continued from S. S. 4526).—In the dirt and ash bed above the agglomerate we obtained a number of bones belonging both to our extinct and living vertebrate fauna, amongst them the greater portion of the skeleton of a fur seal. In the shell beds above numerous Maori remains were found—amongst them a few fern-root beaters made of wood, some canoe pins, and flax-plaitings.

When examining first the two main trial trenches crossing each other at right angles in the centre of the cave, the absence of the agglomeratic beds was here noted by me, but I then thought that it might have been caused by the roof having, in that part of the cave, accidentally possessed a greater solidity. In this surmise I was still more confirmed by finding that in those spots the dirt and ash bed was much thicker, lying here directly upon the sands, so that the former had a nearly uniform upper surface. However, when continuing the excavations across the cross ditch towards the entrance of the cave, we found in the longitudinal trench a third pile, and observed that in the space between these three points and another point (where, however, no remains of a pile were existing) forming an oblong square thirty-six feet long by twelve feet wide, the agglomerate bed was entirely missing, and the inference was therefore natural that at one time a human dwelling of some kind had been standing here. My first impression was that the cave dwellers, in order to protect themselves from the pieces of rock becoming loose at intervals from the ceiling, had built a strong roof, resting upon four corner piles, which, after the principal fall of rocks ceased, had accidentally been burned to the ground; but on closer examination it became clear to me that the time during which the agglomeratic beds were formed was of such long duration that it is impossible to assume such a frail construction having lasted so long. Moreover, one can scarcely believe that a primitive race, and which evidently only at intervals inhabited the cave, before the agglomerate bed was deposited upon the marine sands, should act

with such forethought and care. There remains only one other explanation, which I advance with some diffidence, namely, that the builder of the dwelling, whoever he may have been, excavated not only the four holes for fixing the corner piles into the agglomerate, but actually lifted the same in the space between them; against this, however, it may be observed that—if such, as we may presume, unnecessary work was performed—the agglomerate bed ought not only to end abruptly round the former dwelling, but that, the removed material having been thrown outside, the thickness of the bed in question ought to be here much more considerable. However, from the sections made during the progress of the excavations, it does not appear that the agglomerate bed was generally thicker outside this oblong square or that it ended abruptly. On the contrary, the same was found to thin out generally close to the intersecting lines, the ash and dirt bed becoming gradually thicker. The same was the case in some of the other portions of the cave where the agglomerate was also occasionally missing, and I can only regret that when that portion of the cave towards the entrance was excavated, where a great thickness of the overlying shell beds had first to be removed, my official work at the Museum would not allow me to go so often to the ground as I should have wished. This question has therefore to remain an open one.

Having reached (Saturday, October 19th) the cross trench on the eastern side of the cave, and thus examined the whole south-eastern portion, I began to continue with the excavations on the south-western side towards the termination of the cave in that direction. Hitherto we had not been successful either in obtaining human bones or Maori objects of any value, which I hoped might have been placed in a cache similar to those found in carefully excavated hiding places in the moa-hunter (and afterwards Maori) encampments at the Rakaia. However, that evening we came, a few feet from the south-western wall, upon disturbed ground, and carefully taking off the material, the skeleton of a Maori was reached who had been buried a considerable time. The Aborigines who had placed the body there had dug through the shell bed for about eight inches, then two inches through the dirt and ash bed belonging to the older series, and four inches through the agglomeratic deposit. They had then excavated the marine sands for several feet, and had placed the corpse in a sitting position in the grave thus formed, tied together with flax, the face towards the wall of rock, covering

it with part of the sands thrown out, the rest being thrown with the shells excavated around the spot. However, it was clearly visible that the ground had afterwards been levelled, as it were, under the feet of human occupants, and about six inches of newly-formed shell bed, being continuous and level with the more distant layer of the same nature, had been deposited over the grave, the whole being capped with three inches of European accumulations. It is thus evident that the burial had not only taken place long before the Europeans came to the cave, but that the Maoris continued for a considerable number of years to frequent the cave, and to take their meals there after that event had happened.

This fact naturally leads me to conclude that the cave was not constantly, or even regularly, visited by the Maoris; and that its occupation occurred only occasionally, and by different tribes of natives; because, judging from the character and superstitions of the Aborigines of the present time, we can safely say that, after the burial of one of them, the cave would have become strictly "tapu" to all those having any knowledge of the fact, at least as far as the taking of meals is concerned. This opinion is also shared by the Rev. J. Buller, whom I consulted on this question, and who, having been living for many years amongst them in the Northern Island, is perfectly acquainted with all their customs. From this fact alone, and the conclusions therefrom, if admitted, we are obliged to assume that considerable space of time was necessary to form this shell bed alone.

The body, as before observed, had been tied together with flax, the knees being placed below the chin. Owing to the antiseptic properties of the sand, there were still some ligaments and skin upon the bones, and some hair upon the skull. The skeleton, which has been articulated by Mr. F. Fuller, and now stands in the Canterbury Museum, belonged to a man of a height of nearly six feet, past manhood. The ulna of the left arm is broken, and was only partially healed when the man died. We are so accustomed to observe natives possessing a fine set of teeth, that it is rather striking to see that this Aborigine must have suffered very much from bad and distorted teeth. Thus we find that most of the premolars and molars are missing in the lower jaw, the alveoles being already quite absorbed. In the upper jaw the first molar on the right side and the first molar on the left are distorted inwards, their anterior surfaces being adherent to the alveoles, which are developed into

a slight bony outgrowth. Owing to a very remarkable distortion of the left molar, mastication was performed with its outer surface, which was worn.

Examining the two smaller caves, we obtained here some moa and other birds' bones lying close to the surface of the sands, mixed up with ashes and other signs of human occupation, so that it is evident that casual visitors penetrated to these inner caves, probably to hide themselves from their enemies, and cooked their meals, or at least lighted fires. As these two smaller caves for years past have been visited by Europeans, a number of moa bones have, as I understand, been carried away, having been observed amongst the sands.

Having reached the end of the main cave, a more tedious piece of work was now before us, because, before being able to reach the dirt and agglomerate beds in this northern portion of the cave, we were obliged to remove a considerable mass of shell deposits, which as we approached the entrance of the cave became gradually thicker till they reached a thickness of eight feet. I have already before stated that the agglomerate bed was missing where the supposed hut or enclosure had once been standing, and that the ash and dirt bed continued without interruption to cover here the marine sands. Over this area I observed the dirt bed to possess a much greater thickness than in other localities where the agglomerate was present, attaining generally a thickness of eight to nine inches between the four piles, and thus showing that by a more extended deposition of ashes and kitchen middens, the general level of the floor of the cave had here been maintained. We obtained here, mostly embedded in the marine sands, and only partly entering the dirt bed, the bones of the left leg belonging to a large specimen of *Euryapteryx gravis*. The tibia and femur had been broken in the usual manner for the extraction of the marrow, whilst the metatarsus was entire, and very much calcined at its lower (distal) extremity. The fibula was found to be also broken in several places, as would happen by fracturing the tibia, with the former bone still attached. Some phalanges and a great number of small pieces of the two broken leg-bones were lying also close by. As none of the bones were calcined, with the exception of the lower portion of the metatarsus, it appears that this part, not possessing any flesh, was not protected from the fire so carefully as the other portions had been. If this surmise be correct, we have here a case of broiling on a large scale before us.

Advancing towards the entrance of the cave, we obtained occasionally, in the marine sands, agglomerate and dirt beds, rough stone implements,—mostly mere chips of dolerite, obtainable close to the cave,—and, with very few exceptions, in no way to be compared with the artistically chipped flint implements from the Rakaia encampment; but these shapeless implements were now sometimes replaced by better formed tools. Some pieces of obsidian were found with them, embedded in the agglomerate, having, in two instances, the form of spear-heads.

From the great number of moa bones, belonging to so many specimens and species, found over that small area, it became evident that this spot had been a favourite camping ground for the moa-hunting frequenters of the cave, because in the small space between the northern side of the supposed enclosure or hut and the entrance of the cave we obtained the following bones:—

*Dinornis robustus*.—Right femur, portions of tibia and metatarsus (broken for the extraction of the marrow), portion of pelvis, two ribs, four cervical and one dorsal vertebræ.

*Palapteryx crassus*.—Portions of two full-grown birds, femora ribs and several vertebræ.

*Euryapteryx gravis*.—Portions of right femur, of pelvis, two ribs, nine phalanges, one dorsal, three cervical vertebræ; all the bones of this specimen being doubtless derived from the same individual to which the bones of the left leg, previously described, belonged, and which were found towards the centre of the cave.

*Euryapteryx rheides*.—Numerous bones, belonging to at least two adults, and one young specimen, the leg-bones broken in the usual manner, portions of pelvis, sternum and skull, vertebræ, phalanges, and ribs in considerable number.

*Aptornis otidiformis*.—Lower portion of left tibia and femur, the marrow having evidently been extracted.

Besides these remains belonging to our extinct birds, a great number of bones of smaller species of our recent Avifauna were collected, of which the spotted shag (*Graculus punctatus*) and the small blue penguin (*Eudyptula undina*) were the most numerous. Besides them, other specimens of the *Graculus* family, the gray duck (*Anas superciliosa*), and gulls and terns were well represented. From the dirt beds a considerable number of specimens were collected, mostly belonging to the spotted shag, but none which could be identified as moa feathers. In the upper or shell beds, as

previously stated, the bones of the spotted shag were also of frequent occurrence, and besides those previously enumerated we found also a few belonging to the white crane, the nelly, and the New Zealand harrier. The feathers collected in these upper beds were mostly all belonging either to the spotted shag or to the kakapo (*Stringops habroptilus*). It may not be here out of place to remind you that amongst the kitchen middens of the Rakaia encampment, belonging to hundreds of specimens, only a few bones of *Dinornis ingens* were found, the most gigantic species being thus unrepresented. It is therefore interesting to observe that the moa-hunters were also chasing the latter, as proved by the remains of *Dinornis robustus* in the kitchen middens at the mouth of the cave.

In the sands at the western corner near its entrance, and where, as before observed, the agglomeratic deposit was missing, we found arranged in the sands another oven of considerable dimensions, used for a time by the moa-hunters, but afterwards abandoned, as it was filled and covered over with numerous moa bones and their fragments, as well as with a considerable thickness of dirt and ashes. The absence of ovens for cooking purposes, with the exception of the one, previously alluded to, occurring in the marine sands in the south-western portion, and of a second at the western entrance of the cave, together with a third, of which I shall speak presently, is a striking feature, from which we can only conclude that the moa-hunters cooked their food generally outside, and only occasionally ate it inside, the cave; whilst the thick ash bed suggests that generally fires had been lighted, round which they sat or camped.

The third oven—several feet in diameter—was found about ten feet from the entrance, towards its middle part, having been prepared immediately after the agglomeratic bed had been deposited. The moa-hunters had broken through that latter deposit, and arranged the stones of their oven—taken mostly from the removed agglomerate in the marine sands thus laid open. After having been used, probably in a few instances only, it had become filled up with some of the agglomerate previously disturbed for its excavation—with pieces of moa bones, and chips of timber (*Totara*) not used for cooking purposes. Some of the latter were standing vertical, or at least at a high angle, whilst the chips amongst the dirt beds were found to be generally in a horizontal position. This oven, with the kitchen middens filling it, was found to be covered by the never-missing ash and dirt bed, the latter being continuous with the same

deposit all round. It is thus evident that this oven was excavated, used and filled again with the remnants of the meals, and of the usual occupations of the moa-hunters before the ash and dirt bed was formed above the agglomerate. On the bottom of this oven a polished chisel of dark chert was discovered 4.80 inches long by 1.51 inches broad, which in its general form resembles those which are doubtless of Maori manufacture, and which probably had been lost accidentally by being covered over. I obtained the information concerning this oven from the workmen, as I was unfortunately absent when the discovery was made, but I think it can be accepted as reliable, as I cross-examined both men, and found their account to agree in every particular. However, to strengthen this important point, on the 31st of October, during my presence, the men picked up a portion of another polished adze, which fell out of the face of the agglomerate bed, just broken into, and when examining that face carefully I had the satisfaction to find the spot whence it had fallen out, so that there is no doubt but that it had been embedded in that agglomerate. On the other hand, in the dirt bed near the entrance of the cave, generally close to the agglomerate, or when missing, sometimes in contact with the marine sands, several broken polished stone implements were excavated, together with pieces of gritty sandstone, some of which had been grooved during the process of sharpening. As these fragments were found amongst the undisturbed kitchen middens of the moa-hunters, there is not the least doubt that the same were possessed of polished stone implements as well as of chipped flint tools, probably employing the former for the building of their dwellings or manufacture of their canoes and wooden implements, whilst the latter were probably used for the chase or for cutting up and preparing their huge game for the oven and their meals. And as I shall show further on—in the description of the usual moa-ovens outside the cave—that similar polished stone implements were obtained in contact with moa-bones in undisturbed positions, I have to modify my former views in assuming that the moa-hunters did not possess polished stone implements. Thus the excavations in and near the Moa-bone Point Cave fully confirm the observations concerning this point made, and published by Messrs. Mantell and Murison some years ago. My former opinion was based upon the careful examination of hundreds of moa-cooking ovens in the Rakaia encampment, where I obtained great quantities of chipped stone implements,—



Bones of small fur seal ( <i>Gypsophoca subtropicalis</i> )	-	-	27
„ dog	-	-	43
„ porpoise	-	-	24

b. Remains of Birds.—1. Extinct.

Bones of <i>Dinornis robustus</i>	-	-	13
„ <i>Palapteryx crassus</i>	-	-	18
„ <i>Euryapteryx gravis</i>	-	-	35
„ „ <i>rheides</i>	-	-	94
„ <i>Meionornis casuarinus</i>	-	-	17
„ „ <i>didiformis</i>	-	-	103
„ <i>Aptornis defossor</i>	-	-	1
„ „ <i>otidiformis</i>	-	-	2
Fragments of bones of different species	-	-	51
Tracheal rings of moas	-	-	37
Portions of egg-shells of moas	-	-	3

2. Recent.

Bones of spotted shag ( <i>Graculus punctatus</i> )	-	-	107
„ small blue penguin ( <i>Eudyptula undina</i> )	-	-	67
„ gray duck ( <i>Anas superciliosa</i> )	-	-	17
„ black shag ( <i>Graculus carbo</i> )	-	-	18
„ pied shag ( <i>G. varius</i> )	-	-	15
„ whitethroated shag ( <i>G. brevirostris</i> )	-	-	12
„ nelly ( <i>Ossifraga gigantea</i> )	-	-	6
„ large kiwi ( <i>Apteryx Australis</i> )	-	-	3
„ kaka ( <i>Nestor meridionalis</i> )	-	-	5
„ kakapo ( <i>Stringops habroptilus</i> )	-	-	2
„ tui, gulls, terns, and smaller birds, not yet determined	-	-	148
Feathers of kaka	-	-	11
„ nelly	-	-	1
„ spotted shag	-	-	39
„ harrier ( <i>Circus assimilis</i> )	-	-	1
Feathers undetermined	-	-	5

The curious fact, first observed at the Rakaia encampment, that none of the bones of the kitchen middens were gnawed by dogs, was also recognised in and near the cave, the smallest bones, without exception, being quite intact, except where cut or broken by human hands. On the other hand, in the upper or shell beds, many of the bones appeared to have been gnawed by rats and a few by dogs. In any case, the hypothesis first put forward in my

paper on the Rakaia encampment—that the moa-hunters chased the dog for food, without having it domesticated—certainly gains in probability by these new observations.

Amongst the smaller birds enumerated above, and of which none are extinct, the presence of the bones of the kakapo (*Stringops habroptilus*) and of the large kiwi or roa (*Apteryx Australis*) proves that these birds inhabited the peninsula and its neighbourhood, from where they have now disappeared, a long time. The only fish bones obtained in the lower beds belonged, mostly all, to the hapuku (*Oligorus gigas*).

The upper or shell beds also did not contain any objects of value which had belonged to the Maoris, although a great number of things were found, either broken, become useless, and thrown away, or accidentally dropped. There were only a few pieces of broken polished stone implements and a small piece of nephrite (greenstone) among them.

*List of Objects found in the Upper or Maori Deposits.*

a. Remains of Mammals.

Bones, human - - - - -	3
Bones of whales, ziphoid - - - - -	12
„ porpoise - - - - -	9
„ dog - - - - -	51
„ sea leopard - - - - -	11
„ fur seal - - - - -	37
„ little fur seal - - - - -	19
„ rat - - - - -	3

b. Remains of Birds.—1. Extinct.

Small pieces of moa bones, mostly bleached and decomposed 7

2. Recent.

Bones of spotted shag - - - - -	104
„ Graculus sp.? - - - - -	17
„ gray duck - - - - -	8
„ harrier - - - - -	3
„ white crane ( <i>Ardea alba</i> ) - - - - -	2
„ paradise duck ( <i>Casarca variegata</i> ) - - - - -	3
„ large kiwi - - - - -	2
„ nelly - - - - -	1
„ small birds, not yet determined - - - - -	37
Feathers of spotted shag - - - - -	62
„ kakapo - - - - -	49

Concerning the existence of human bones in the lower beds, I may here add that portions of the right ramus of a lower jaw were found in the western side in the marine sands, about six inches below their surface, which might have been carried in by the surf, as near it the greater portion of the skeleton of a fur seal was excavated, which was doubtless brought in in the same manner. This lower jaw had belonged to a not quite full-grown man, the last molar just making its appearance. There was not the least sign of such bones either in the agglomerate or in the ash and dirt bed above it, thus confirming similar observations made at the Rakaia encampment. Amongst the bones collected in the Maori or shell beds were two pelvic bones belonging to a full-grown male, and the ninth dorsal vertebra, not quite mature; all three were entire, and it is difficult to say how they may have been brought into the cave; but as there was, through the whole thickness of these beds, not the least sign of any broken human bone, it appears obvious that, during all the time the shell-fish eaters were in occupation of the ground, they were either not cannibals or had such a peaceful existence, not being at war with neighbouring tribes, that they had no opportunity to indulge in that horrible practice. However, looking at the long lapse of time during which the shell-fish eaters were in possession of the ground, and the insecurity of life to which savage tribes are exposed, I am inclined to believe that, had they been cannibals when the lower portions of the shell beds were formed, there would certainly be some evidence of it.

My friend, the Rev. J. W. Stack, at my request, has made inquiries amongst the older natives in Kaiapoi, and has been informed by them that the cave in question had been a common resort of their fishing parties some thirty years ago, so that some of the uppermost beds might have been formed by their refuse; but as cannibalism has been practised at least for several centuries in New Zealand, the absence of human bones in the shell beds certainly proves that they are of considerable antiquity, which is still more strengthened by the curious fact that, amongst the hundreds of bones belonging to small birds, not a vestige of the weka (*Ocydromus Australis*) has been met with, the same being the fact with the lower or moa-hunter beds—a feature they have in common with those occurring in the Rakaia encampment. As far back as the traditions of the Maoris go, allusion is made in their songs to the

weka, and if we would examine newer refuse heaps of the natives, either on the coast or inland, I am sure that we could obtain ample evidence, from the presence of the remains of this bird, that it constituted one of their favourite meals.

I have before observed that the line of demarcation between the surface of the dirt bed and the overlying shell beds, in which no moa bones were found, is constant and very distinct, and goes far to prove that during a very considerable lapse of time no human occupation of the cave took place. This proposition gains in strength by the existence of a bed of drift sand, deposited between these two beds, forming a layer of a thickness of about twelve inches at the entrance of the cave and gradually thinning towards the interior. As the cave was amply protected, not only by its position as well as by the huge rock in front, but, without doubt, also by dense vegetation, sprung up when it was left undisturbed after the moa-hunters ceased to frequent it, the discovery of this bed of drift sand between the two formations has important bearings.

(To be continued).

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*Notes on Birdsnesting in Kent.*

By ARTHUR G. BUTLER, Esq., F.L.S.

WHILST collecting eggs this year I have been somewhat surprised at the rarity and even absence of some of the commoner species. The non-existence of the eggs of starlings, wrens, tits, wagtails, and a few others, is accounted for by the presence of their deserted nests—they have evidently been early at work; but the rarity of such eggs as those of the whitethroat, greenfinch and linnet, and the absence of the bullfinch, must, I think, be attributed to the reverse condition of things. The greenfinch has certainly been unusually lazy, for when I returned to town some of her nests were still unfinished, whilst others contained only two or three newly-laid eggs. So far as my experience has gone, the eggs of several of the commoner birds have shown an unusual tendency to vary; but this will be best seen in the subjoined list of the few species which have this year fallen to my lot.

*Redbacked Shrike.*—Barming, near Maidstone, 2nd and 7th of June, two nests, built in bushes; *var.*? resembling the eggs of the

gray shrike.\* Barming, 2nd June; nests larger than the preceding, heavier in construction, and built in the forks of elder and hawthorn trees.

*Song Thrush*.—Normal type, Sittingbourne, May 24th; Rodmersham, May 27th; Barming, June 8th. *Var. a.* Streaked at large end, like a bunting's egg, with brown; Rodmersham, May 23rd. *Var. b.* All the spots extremely small; Murston, May 26th. *Var. c.* Much elongated; Sittingbourne, May 27th. *Var. d.* The black spots at the small end; Barming, June 7th. *Var. e.* All the spots pale brown, not rounded; Barming, June 8th.

*Blackbird*.—Rodmersham, May 27th; Sittingbourne, May 28th; Bredgar, June 1st; Barming, June 7th and 8th. *Var. a.* Sub-cylindrical, green, spotted with ferruginous; Sittingbourne, May 27th. *Var. b.* Like some varieties of missel thrush, grayish green, prettily mottled with ferruginous; Sittingbourne, May 24th. *Var. c.* A brown zone at the large end; Bobbing, June 11th.

*Hedgesparrow*.—Sittingbourne, May 27th; Barming, June 8th. *Var.*, almost globular; Sittingbourne, May 24th.

*Redbreast*.—Murston, May 26th; one egg nearly pure white, the reddish dots being few.

*Redstart*.—Murston, taken by Mr. H. Bonnie.

*Whinchat*.—Bobbing, June 11th; young birds in the nest. The nest was placed in a bramble through which furze was growing.

*Sedge Warbler*.—Murston, May 29th. *Var.?* mottled like a whitethroat's egg; Murston, May 26th. I cannot identify this with any other species: the nest was of the usual type.

*Reed Warbler*.—Tonge Mill, Tonge, near Sittingbourne, 5th and 11th of June; two forms, one greenish, the other grayish; cuckoo's egg in the latter.

*Nightingale*.—Murston, May; presented by Mr. H. Bonnie. I have not seen the nest of this bird for three years, yet I know it to be common in all the woods between Herne Bay and Maidstone, and probably all over Kent; I have often heard as many as five birds singing at a time.

*Blackcap*.—Murston, May 24th; Borden, May 25th; Barming, June 7th and 8th.

\* I am told that this bird occurs in Kent; indeed I have had it pointed out to me upon the wing, but I suppose, unless I obtain specimens, I shall not be believed.—A. G. B.

*Garden Warbler*.—Canterbury, June 4th; Barming, June 8th. The examples taken at Barming are very pale; the markings have a washed-out appearance, apparently not being on the surface of the shell.

*Whitethroat*.—Rodmersham, May 24th; sap-green, mottled. I only found one nest of this common species.

*Yellowhammer*.—Tunstall, May 29th. Only one nest with three eggs.

*Chaffinch*.—Sittingbourne, May 24th; only one nest with two eggs.

*House Sparrow*.—Sittingbourne, May 24th, 28th, and June 3rd; Newington, June 3rd; Barming, June 8th; usual varieties, chiefly in sand martin's holes. *Var.*, unusually white, in nest of house martin, June 5th.

*Greenfinch*.—Sittingbourne, May 27th; Bobbing, June 11th.

*Goldfinch?*—Newington, June 3rd and 5th, in one nest. These eggs, although in the proper form of nest and in the right position for this bird, are so large that I feel considerable doubt of their correct identification.

*Linnet*.—Rodmersham, May 27th; Sittingbourne, May 28th. I also have a form of linnet's egg taken at Murston, May 29th, I have generally supposed it referable to the greenfinch, but it is quite abnormal, and Hewitson's work affords no clew whatever to it. I have taken the egg in former years.

*Lesser Redpoll?*—Callum Hill, near Newington, May 31st. This may be only an abnormal linnet's egg; it is exactly like Hewitson's representation of the egg of the mealy redpoll; nest lined inside with white wool.

*Crow*.—Murston, 1875; presented by Mr. H. Bonnie.

*Cuckoo*.—Small reddish form, Murston, May 29th; in sedge warbler's nest. Larger grayish form, Tonge Mill, Tonge, June 5th; in reed warbler's nest.

*Swallow*.—Tonge Mill, June 5th and 11th; in rafters of boat-house.

*Martin*.—Tonge Mill, June 5th.

*Turtle Dove*.—Barming, June 7th; two nests.

ARTHUR G. BUTLER.

17, Oxford Road, Ealing.

*Ornithological Notes from Devonshire, Cornwall, &c.*

By JOHN GATCOMBE, Esq.

(Continued from S. S. 4491.)

## MAY, 1875.

1st. There are still a great many lesser blackbacked gulls in our harbours, although some have left for their breeding quarters. I saw some martins and a spotted flycatcher this morning. A lesser spotted woodpecker was brought to one of our birdstuffers, which had been killed in the neighbourhood of Plymouth.

3rd. Observed a flight of wheatears on the coast, apparently only just arrived; they were in very perfect summer plumage: one fine old male had its wings quite black and the lower parts almost pure white, with only a shade of buff under the chin and beginning of the breast; the colour of the back, too, was of a much purer gray than usual. One of these birds caught and swallowed whole a large specimen of *Ligia oceanica*, a woodlouse-looking creature frequently seen running about on the rocks by the sea-side: the black redstart, too, occasionally feeds on these creatures. Several more whimbrels arrived on the coast this morning.

5th. Heard the garden warbler.

9th. Observed the first swifts.

10th. Again visited the breeding place of the herring gulls at Wembury, and saw one sitting on three eggs. After watching the gulls for some time my attention was attracted by loud croakings and a kind of chattering in the air, and on looking round I saw a peregrine falcon being vigorously attacked by a raven, one of a pair breeding near the spot; the falcon, however, did not seem to mind its buffeting much, but after a bit of a "spar," sheared off, hotly pursued by an irate herring gull, to the other side of the river,—nevertheless, returning in a few minutes, when the strife was renewed until the bold intruder took its departure to a perch on the cliff, some little distance from the breeding stations.

11th. Observed the common sandpiper and many more swifts on the coast.

14th. Visited Rhame Head, in Cornwall, a few miles from Plymouth, where I found the herring gulls breeding plentifully on the cliffs close by. A pair of common buzzards, too, had a nest, I think, not far off, judging from the continual noise they made.

When returning through a quiet lane near the coast, a turtle dove rose quite close to me, apparently only just arrived, and from its languid flight seemed much exhausted: this species is very seldom met with in the vicinity of Plymouth. A nightjar was heard during the evening.

21st. Some gannets were seen in the Sound, off the Hoe, and swifts have become very plentiful.

27th. Examined the contents of the stomachs of two redbacked shrikes and a nightjar, which seemed to consist of nothing but the remains of the common dung beetle.

30th. Again visited the breeding place of the herring gulls at Wembury, and found that almost all the nests into which I could look with my glass contained eggs. Some of the birds sat very close, but others would fly off on being disturbed by a shout, when the eggs could be easily seen. I was quite astonished at the carelessness—or I may say stupidity—displayed by some of these birds in selecting such exposed situations for their nests. In one instance I had only to walk to the edge of the cliff, stoop down, and—had I been so minded—pick up an egg from one nest; and just a few feet below was another containing three eggs, which any child might have got at: I would not have touched them on any consideration, but at the same time felt quite sure that they would be taken before my next visit. The peregrine was there again to-day, and I think has a nest in a fissure of the rock quite in the midst of the sitting gulls: this I believe from the anxiety it seemed to show, flying round one particular spot, and making a great noise until we left. Many martins nest on the face of these cliffs. Nightjars appear to be rather plentiful this spring, for I am sorry to say many have already been brought to our birdstuffers, and some eggs found.

JOHN GATCOMBE.

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*Some Account of the gigantic Squid (Architeuthis Dux) lately captured off Boffin Island, Connemara.* By A. G. MORE, F.L.S., M.R.I.A., Assistant-Naturalist in the Museum of the Royal Dublin Society.

THE history lately given in a newspaper, the 'Galway Express,'—which has also been published in the 'Zoologist' for June (S. S.

4502),—is no myth, and the great size of the animal is sufficiently proved both by letters received from Sergeant O'Connor, of the Royal Irish Constabulary stationed in Boffin Island, and by the portions of this great squid which he has sent up to Dublin. Though imperfect, both tentacles and arms are represented, and the huge beak, about five inches across, is now to be seen in the Museum of the Royal Dublin Society.

The animal was killed on the 25th of April; and, as the men who attacked it were in a small boat, they could only bring ashore the head and some of the arms—*viz.*, the tentacles and two of the short arms. The head and eyes were unfortunately destroyed, but Sergeant O'Connor managed to rescue, and has transmitted to us, the greater part of both tentacles, one short arm, and the beak. He measured the tentacles when fresh as reaching to the length of thirty feet, and the portions of them which we have received—shrunk and distorted as they now are—still measure fourteen and seventeen feet, when the pieces are put together. The peduncle is nearly bare throughout, but on closer examination, a few small, solitary, nearly sessile, suckers, about three-twentieths of an inch in diameter, are found scattered in an irregular line and at considerable intervals along the whole length of the stalk, becoming more numerous upwards. The club itself now measures altogether two feet and nine inches; at its base there is a space, or patch, for about five inches closely covered with small crowded suckers, two-tenths of an inch in diameter, and which are arranged in rows of about six across; only a few of these have a denticulated horny ring; the lower rows, like all those on the peduncle, have the ring smooth. The centre of the club for about eighteen inches is occupied by large pedunculated suckers nearly an inch in diameter, arranged somewhat alternately along the middle, and there is the same number of half-inch suckers along the margin, about fourteen in each line—twenty-eight large and twenty-eight smaller. No horny rings are left in the large central suckers, but those in the outer rows along the edge are all furnished with a denticulated ring bearing some twenty-eight teeth pointing inwards, and there is no doubt that the central suckers were once similarly armed, but the rings had fallen out before the specimens were preserved. The inner surface of the tapering end of the club is again crowded with small and probably smooth-ringed suckers.

The beak is of the usual shape, about five inches and a quarter by three inches and a half, of a dark reddish brown colour, with a large tooth in both margins of the inner mandible, and a much smaller notch on each side of the outer mandible. The horny sheath of the tongue is also of a brownish colour, and is studded with six or seven rows of small teeth pointing backwards.

The short arm is much mutilated and decayed,—all the rings have fallen from the suckers,—but when fresh, Sergeant O'Connor measured it as eight feet in length and fifteen inches round the base.

Our specimen is provisionally labelled *Architeuthis Dux*, in the belief that it is identical with the Danish species so named by Steenstrup, and the few perfect suckers which we have closely resemble the figure given by Bronn of a sucker of *Architeuthis*. It will be observed that the large size of the outer suckers along the margin of the club clearly distinguish our specimen from the *Megaloteuthis Harveyi* (*Kent*), lately taken in Newfoundland, in which the outer suckers are described as minute, while the crowded mass of suckers in six rows at the base of the club will equally serve to remove our present subject from any of the known species of *Ommastrephes*, to which genus, however, it is probably closely allied.

I believe that only two other instances are known of these gigantic cuttles, or "king squids," as we might call them, being taken in British waters. One is recorded by Mr. Gwyn Jeffreys as having occurred in Shetland. Another, stranded on the shores of Kerry more than two hundred years ago, has lately been introduced to the readers of the 'Zoologist,' under the name of *Dinoteuthis proboscideus*, and was probably very different, with a much broader form of body. These oceanic monsters may include more than one genus and many species.

A. G. MORE.

Dublin, July 1, 1875.

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**Mouse eating Flies.**—A few days ago I captured an immature male specimen of the common mouse (*Mus musculus*). I gave it bread-crumbs, but it took no notice of them. A large blow-fly happened to be buzzing against the window-pane, when it just struck me I would try the mouse with it. I did so: the fly was instantly seized and demolished in a few minutes, with the exception of the wings and legs. Cheese—that all-powerful seducer of the mouse—was tried, but it was neglected also. I tried

the captive with various other items, and though they were eaten after a time, nothing tempts the mouse so rapidly out of his hiding-place as a fly. So far it will eat flies almost to the rejection of everything else. The specimen alluded to was caught in the fields. We have but two species in Ireland (*Mus musculus* and *M. sylvaticus*)—no authentic record of *Mus messorius* hitherto that I have been able to trace, though its detection is not improbable. Bell indeed, in his last edition, gives it as Irish on Kinahan's authority; but I fear some error here, as Kinahan records it nowhere himself. Bell's 'Quadrupeds'—standard work and all though it be—is far from being infallible on Irish Natural History, as I have shown in a previous number of the 'Zoologist': careless editing has spoiled what would otherwise be really a good book.—*Richard M. Barrington; Fassaroo, Bray, County Wicklow, July 12, 1875.*

**Grampus captured in the River Tamar.**—The following paragraph, which perhaps you may like to copy in the 'Zoologist,' was cut from the 'Western Morning News':—"A fine fish of the grampus species was captured in the Tamar off Cargreen on Saturday (June 19th). It was observed swimming about as though injured, and four boats went off and took it in tow, but it swam away with the whole of them and nearly capsized one with its tail. After firing four shots at it—one of small shot which did not penetrate, and three bullets—it was disabled and brought on shore. It measures fourteen feet in length, and is in girth seven feet and a quarter before the dorsal fin. Its tail is exactly four feet wide, and its mouth, lined with a fine cage of teeth, measures twenty inches. It is calculated to weigh over a ton, and took about a score of men to haul it on the quay, where it lies at present. The fish is now being exhibited at a small charge, and the visitors are very numerous." I examined the above-mentioned animal, and found it to be the true grampus or killer (*Delphinus Orca*), and fully as large as stated in the paragraph. The teeth were eleven on each side of either jaw, the five front ones being worn down nearly even with the gums, which I believe is generally the case in old animals of this species; the rest were round, rather curved, and apparently loose to the touch. I was informed by some of the men that it was disabled by a gun loaded with marbles instead of bullets, as mentioned above. Its skin is now in the course of preservation.—*John Gatcombe.*

**Food for Pet Whales.**—A rather amusing incident concerning a species of Cetacean occurred to me when in Somersetshire a few years since. Being in the neighbourhood of Bridgwater, and reading in a local paper that a young whale had been captured at the mouth of the River Parret and taken alive to Bridgwater for exhibition, I lost no time in repairing to that place to make inquiry, in the hope that I might be the means of having it forwarded to one of the tanks in the Zoological Gardens, Regent's Park, but found—not much to my surprise—that it had been dead and cut up for

some days. However, upon asking at a house if they had not had a young whale exhibiting, I was answered in the following words:—"Ese, zur, and a vine lusty young vish he was, playful as a kitten—lived a week and growed a root—till the vools chucked en-wie barley male!"—*J. Gatcombe.*

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**On the Snowy Owl Nesting in Confinement.**—In continuation of my communication on this subject in the 'Zoologist' for 1874 (S. S. 4154), I have now the pleasure of stating that the pair of snowy owls belonging to my friend Mr. Edward Fountaine have this year hatched their young in his aviary at Easton; this being, so far as I know, the first instance of the young of this species being hatched in captivity. They are the same pair which produced fertile eggs last year, but did not then hatch them. This year the hen bird laid her first egg on the 30th of May, and four others subsequently. The first egg was hatched on the 1st of July, the second on the 3rd, the third on the 6th, the fourth on the 8th, and the fifth on the 9th. The last young one unfortunately died in the process of hatching, but the other four, Mr. Fountaine informs me, are alive and well; and he adds the following particulars:—"The old birds are extremely savage, particularly the cock; he passes much of his time at the nest, waiting to be ready to feed the young ones; the nest is kept beautifully clean by the parent birds—no pellets and no rotten skins laid up with the young; the hen bird is very noisy, particularly towards evening; the young birds are as white as snow."—*J. H. Gurney; July 14, 1875.*

**Cuckoos Congregating: Pigeons laying in a Magpie's Nest.**—Mr. Corbin's comments on cuckoos (S. S. 4538) remind me that about ten years ago, whilst walking near here, at 7 A. M., seven cuckoos in a cluster flew close over my head, "cu-cu-cuckooing" violently and mobbing each other. My impression then was and is now, that they were pairing, after the manner of sparrows: unfortunately I have mislaid my memorandum, and so cannot find the month this occurred in: the earliest date I have observed this bird here was the 19th of April, 1873. In 1859 I—then a boy at Rugby School—obtained permission from a farmer to take a magpie's nest built at the top of an isolated tree in the middle of one of his pastures. After considerable difficulty in reaching the nest, I found it contain *inside* two pigeon's eggs, which probably were stock dove's, although we boys called them wood pigeon's; *outside*, amongst the twigs, a starling's nest with three eggs, and two sparrows' nests, each with eggs. I have twice taken kestrel's eggs out of magpie's nests.—*Egbert D. Hamel; Bole Hall, Tamworth, July 3, 1875.*

**Stock Dove in Northumberland.**—I do not think the appearance of this bird in Northumberland is so rare as seems to be supposed from the notice in your June number (Zool. S. S. 4539). On the 5th of last month I found

a nest with two eggs near Barrasford, North Tyne, in a hole in the root of a tree. The nest, which consisted of about a dozen stalks of grass, was eighteen inches in, and about four feet from the ground. I have since seen a stock dove about three miles north of this place.—*W. J. Humble, jun.*; *Newcastle-on-Tyne, July 2, 1875.*

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**Fruit-eating Snakes.**—In reference to Mr. Sharp's remarks (*Zool. S. S.* 4541), I beg leave to point out that a peculiar East-Indian snake, *Acrochordus javanicus*, is commonly supposed to feed on fruits. Hornstedt, its describer, states that in the stomach of his specimen was "found a quantity of undigested fruits." See Günther's 'Reptiles of British India' (p. 336).—*P. L. Sclater*; 11, *Hanover Square, London, W.*

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**Large Pike.**—Yesterday (June 30th) I saw a pike which was caught a few weeks since on Heigham Sounds, Norfolk, which measured forty-six inches in length, and the stomach of which contained a bream eighteen inches long and five and three-quarters in depth.—*J. H. Gurney.*

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**Zoological Society of London: Additions to the Menagerie during the Month of May, 1875.—**

N.B.—The day of the month when the specimen was obtained precedes its name; the number of specimens, if more than one, also precedes the name; when a species is new to the collection an asterisk (\*) is affixed to the name: the country of which the species is native follows the name; the donor's name follows the name of the country, except when the specimen has been purchased; the part of the Gardens where the specimen is exhibited follows the donor's name.

May, 1875.

1. Macaque monkey (male); India; presented by Mr. S. Lawrence; monkey house.
- „ Pigtailed monkey (male); Java; by Mr. A. B. Gordon; monkey house.
- „ Bluebearded jay; Para; eastern aviary.
- „ Three scarlet ibises; Para; parrot house.
2. Two whitefronted lemurs and a hairy armadillo; born in the Gardens; monkey house.
- „ Common kite; Europe; by the Rev. T. P. Powell; kites' aviary.
3. Guinea baboon (male); West Africa; by Mr. Lionel Hart; monkey house.
4. Yellow-shouldered amazon (male); South America; by Miss M. Sutherland; rodent house.

5. \*Hairy tree porcupine (male); Brazil; small mammal house.
- „ \*Rock cavy (male); Brazil; small mammal house.
- „ \*Common squirrel; Siberia; small mammal house.
- „ Molucca deer (male) and Pampas deer (female); born in the Menagerie; deer sheds.
- „ Two Chinese jay thrushes; China; western aviary.
6. Patas monkey (female); deposited; monkey house.
8. Two sand smelts, two flounders, one sole, and three viviparous blennies; British Seas; by Mr. A. H. Smee; fish house.
10. Campbell's monkey (male); West Africa; by Capt. Damm, of the ship 'Cupido'; monkey house.
- „ Yellow-collared parakeet; Western Australia; by Mrs. Harborow; parrot house.
- „ Two Antarctic skuas; Kerguelen's Island; by the Rev. A. E. Eaton; gull pond.
11. Sloth bear (male); Ceylon; by Mr. W. Dumaresq Wright; bear dens.
- „ Six Chilian pintails; bred in the Gardens; duck pond.
12. Toque monkey (female); Ceylon; by Mr. A. Ferris; monkey house.
13. Persian gazelle (male); born in the Menagerie; gazelle sheds.
- „ Common barn owl; Europe; by Mr. H. Stacey Marks; owl cages.
- „ Proteus; Adelsberg Caves; by Capt. R. F. Burton; fish house.
14. Lesser whitenosed monkey (male); West Africa; by Mr. J. Gordon; monkey house.
- „ Two coatis; born in the Menagerie; small mammal house.
- „ Eighteen green tree frogs; Portugal; by Mr. J. P. Gassiot, jun.; reptile house.
15. Ocelot (female); South America; small mammal house.
- „ Hoffmann's sloth (female); Panama; sloths' house.
- „ Two Wapiti deer (male and female); North America; deposited; deer sheds.
18. Coypu rat (female); South America; by Mr. E. Paton; rodent house.
- „ King penguin; Falkland Isles; by Mr. F. E. Cobb; pelican pond.
- 19 Black ape (male); Celebes; by the Hon. Evelyn H. Ellis; monkey house.
- „ Larger Macaque monkey (male) and Rhesus monkey (female); Upper Burmah; by Dr. Marfels; monkey house.
- „ Rhesus monkey (male); Upper Burmah; by Dr. J. Anderson; monkey house.
- „ Five Bungoma tortoises, one three-ridged terrapin, one Indian cobra, two Russell's vipers, three carpet vipers, one Indian eryx, one Indian python, three Indian rat-snakes, and five long-snouted snakes; all from India, presented by Dr. Shortt, and exhibited in the reptile house.

19. Coati (male); South America; by Mrs. Denoon; small mammal house.
20. Molucca deer (male); born in the Menagerie; deer sheds.
  - „ Two Darwin's Pucras pheasants (females); China; deposited; pheasantry.
  - „ Two Rendall's Guinea fowls (male and female); West Africa; received in exchange; eastern aviary.
  - „ Two common sheldrakes (male and female); Europe; received in exchange; duck pond.
  - „ Common paradoxure (male); India; by Mr. Jones; small mammal house.
  - „ Snake; South Africa; by Mr. H. Pybus; reptile house.
21. Two smooth-headed capuchins (male and female) and six common marmosets (four males and two females); South-Eastern Brazil; monkey house.
  - „ Two longeared owls; Europe; by Mr. Conrad Berguean; owls' cage.
  - „ Gray francolin, two rain quails (male and female), and an Asiatic quail; all from India; by Mr. A. George; western aviary.
  - „ Australian monitor; by Mr. A. R. Phillips; reptile house.
  - „ Pike and tench; British fresh waters; by Mr. R. Hammond; fish house.
22. West Indian agouti; Trinidad; by Mr. C. James; rodent house.
  - „ Two king parrakeets (males); New South Wales; deposited; parrot house.
23. Red deer (female); Europe; by Mr. V. H. Vaughan Lee; deer sheds.
24. Bronzewinged pigeon; bred in the gardens; western aviary.
25. Three chestnut-eared finches; Australia; by Mrs. G. French Angas; parrot house.
  - „ Two Brazilian teal (male and female) and one Babama duck; South America; duck ponds.
27. Common raccoon (male); North America; by Mr. Wesson; raccoons' cage.
  - „ Rhesus monkey (female); India; by Mr. David Gooding; monkey house.
  - „ Reeves's muntjac (female); born in the Menagerie; gazelle sheds.
  - „ Gray-checked monkey (male); West Africa; by the late Mr. H. Ansell; monkey house.
  - „ Marsh ichneumon; West Africa; by the late Mr. H. Ansell; small mammal house.
  - „ Angolan vulture; West Africa; by the late Mr. H. Ansell; kites' aviary.
  - „ Two Egyptian geese (females); West Africa; by Mr. R. B. N. Walker; duck pond.

28. \*Agile wallaby; Australia; kangaroo sheds.  
 ,, Australian Cassowary; by Mr. E. P. Ramsay; ostrich house.  
 ,, Blacknecked stork; Australia; by Mr. C. Moore; stork paddock.  
 ,, \*Feejean porphyrio; New Caledonia; by Mr. C. Moore; eastern aviary.  
 ,, \*Two Jameson's gulls; Australia; by Mr. C. Moore; eastern aviary.
29. Syrian bear (female); Syria; by Mr. W. Kirby Green; bear dens.  
 ,, Two Nankeen kestrels; North Africa; new falcon aviary.  
 ,, Two variegated sheldrakes; bred in the Gardens; duck pond.
31. Kuhl's deer (male); Bavian Islands; deer sheds.  
 ,, Two Victoria crowned pigeons; Island of Jobie; western aviary.  
 ,, Two Bornean fireback pheasants (male and female); pheasantry.  
 ,, Two great black cockatoos and a black lory; New Guinea; parrot house.  
 ,, Greenbilled curassow; South America; deposited; eastern aviary.  
 ,, Gray ichneumon (male); India; by Mr. J. E. Thomas; small mammal house.  
 ,, Derbian screamer; South America; eastern aviary.  
 ,, Blackfaced spider monkey (male); South America; by Mr. C. F. Filliter; monkey house.

The additions to the Society's Menagerie during the month of May were 165 in number: of these one hundred were acquired by presentation, thirty-four by purchase, four by exchange, eighteen by birth, one by hatch, and eight were received on deposit. Amongst these are specially noticeable—

1. A hairy tree porcupine (*Cercolabes villosus*, F. Cuv.) from South-East Brazil; and—

2. A rock cavy, male (*Cerodon rupestris*, Max.), from the same country. Both of these rodents, which were purchased on the 5th of May of a dealer in Liverpool, are new to the Society's collection.

3. A fine example of the king penguin (*Aptenodytes Pennanti*) from the Falkland Islands, presented by Mr. F. E. Cobb, Manager of the Falkland Islands Company, at Stanley, Falkland Islands; received May 18th.

4. An example of an apparently new species of monkey allied to the common macaque (*Macacus cynomolgus*), presented by Dr. Marfels, Conservator of Forests to the King of Burmah, Mandalay, Burmah, and brought home by Dr. J. Anderson, May 19th. Dr. Anderson will give us a complete description of this monkey.

5. A small wallaby of a species new to the Society's Menagerie, purchased May 28th. It appears to be, as kindly suggested by Mr. Gould, an example of the agile wallaby (*Halmaturus agilis*, Gould's 'Mammals of Australia,' vol. ii., plates 24 and 25), from North Australia.

6. An about half-grown Australian cassowary (*Casuaris australis*) from Queensland, presented by Mr. E. P. Ramsay, May 28th, making

the second example of this hitherto little-known species now alive in the Gardens.

7. Two Jameson's gulls (*Larus Jamesoni*) from Sydney, New South Wales, presented by Mr. C. Moore, May 28th, being the first examples of this beautiful species we have received alive.—*P. L. Selater*.

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## Proceedings of Scientific Societies.

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### ZOOLOGICAL SOCIETY OF LONDON.

June 15, 1875.—Professor NEWTON, F.R.S., Vice-President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of May, 1875.

A letter was read from Dr. A. B. Meyer, of Dresden, stating that having enquired into the statement made by Mr. Bruyn,—that he had specimens of four species of birds of paradise alive in his possession at Ternate,—he had ascertained that the foundation for this statement was that Mr. Bruyn expected to receive specimens of other species, but had only actually obtained examples of one of them (*Paradisca Papuana*).

Mr. George Dawson Rowley exhibited and made remarks on some specimens of two diminutive parrots from New Guinea—*Nasiterna geelvinkina*, and *N. pygmaea*.

Sir Victor Brooke exhibited and made remarks on two original drawings by Mr. Wolf of the two species of koodoo—*Tragelaphus strepsiceros* and *T. imberbis*. The latter was taken from a specimen received direct from the Juba river, Somali. The exact habitat of this species had not before been determined.

Professor Owen read a paper in which he gave the descriptions of some bones of *Harpagornis Moorei*, sent to him by Dr. Haast, which had been found in the turbary deposits of Glenmark, a locality about forty miles from Christchurch, New Zealand. This paper formed the twenty-first part of Professor Owen's series of memoirs on the extinct birds of the genus *Dinornis* and its allies.

Mr. G. E. Dobson communicated the descriptions of some new species of bats of the genus *Vesperugo*.

A communication was read from Mr. George Gulliver, containing observations on the sizes and shapes of the red corpuscles of the blood of vertebrates. These observations were accompanied by a series of drawings of these objects, and by extended and revised tables of measurements.

A communication was read from the Rev. S. J. Whitmee, of Samoa, respecting the changes he had observed in the habits of feeding, roosting and building of the *Didunculus strigirostris*.

A second paper by Mr. Whitmee gave an account of the times of appearance of the edible marine worm (*Palola viridis*) in the islands of the Samoan group, together with observations on its habits.

A communication was read from Dr. J. S. Bowerbank, containing the fourth of a series of memoirs on the Siliceo-fibrous sponges.

Sir Victor Brooke, Bart., and Mr. A. Basil Brooke read a joint paper on the large Asiatic wild sheep or argalis. Of these animals they recognised eight species, *viz*—*Ovis Ammon*, from the Altai between the Sea of Baikal and Thian Shan; *O. Karelini*, from the Thian Shan; *O. Poli*, from the Pamir; *O. Hemsii*, from the Alexandrian Mountains; *O. nigrimontana*, from the Karatau; *O. Hodgsoni*, from Little Thibet; *O. nivicola*, from the Stanovoi Mountains and Kamschatka; and *O. Brookei*, of which the habitat was unknown.

Mr. Sclater read a paper on the rhinoceroses now or lately living in the Society's Menagerie.

This Meeting closes the present Session. There will be no more Scientific Meetings until the commencement of the next Session in November.—*P. L. Sclater*.

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#### ENTOMOLOGICAL SOCIETY OF LONDON.

June 7, 1875.—Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

##### *Donations to the Library.*

The following donations were announced, and thanks voted to the donors:—‘Proceedings of the Royal Society,’ no. 161; presented by the Society. ‘Buletino della Società Entomologica Italiana,’ tome vii., trim. 1; by the Society. ‘Mittheilungen der Schweizerischen Entomologischen Gesellschaft,’ vol. iv., nos. 6 and 7; by the Society. ‘Stettiner Entomologische Zeitung,’ tome xxxvi., nos. 4—6; by the Society. ‘Bulletin de la Société Impériale des Naturalistes de Moscou, Année 1874,’ no. 3; by the Society. ‘Bulletin of the Buffalo Society of Natural Sciences,’ vol. ii., nos. 3 & 4; by the Society. ‘A Monographic Revision and Synopsis of the Trichoptera of the European Fauna,’ by Robert M'Lachlan, F.L.S., &c., part ii.; by the Author. ‘The Canadian Entomologist,’ vol. vii., no. 4; by the Editor. ‘Revision de la Monographie des Élatérides,’ par Ernest Candèze, M.A., &c., 1e fasc.; by the Author. ‘Du Doryphora decemlineata,’ par A. Prudhomme de Borre; by the Author. ‘Descriptions of American Lepidoptera,’ nos. 2—5; ‘Remarks on Dr. Boisduval’s

“Lepidoptères de la Californie”; ‘A Supplement to the “Descriptions of American Lepidoptera”’; by the Authors, A. R. Grote and C. T. Robinson. ‘On the Cotton Worm of the Southern States (*Aletia argillacea*, Hübner);’ ‘Descriptions of North-American Moths;’ by the Author, A. R. Grote. ‘The Entomologist’s Monthly Magazine,’ for June; by the Editors. ‘Manuscript Notes from my Journal, or Illustrations of Insects, Native and Foreign—Diptera or Two-winged Flies,’ by Townend Glover; by the Author. ‘Report of the Commissioner of Agriculture for the year 1873’; ‘Annual Report of the United States Geological and Geographical Survey of the Territories embracing Colorado, being a Report of Progress of the Exploration for the year 1873,’ by F. V. Hayden, United States Geologist; by the Author. ‘Coleopterologische Hefte,’ Heft. xiii.; by the Editor, Baron E. v. Harold. ‘The Journal of the Linnean Society,’—Zoology, no. 59; by the Society. ‘Newman’s Entomologist’ and ‘The Zoologist,’ for June; by the Editor.

By purchase:—‘The Zoological Record for 1873.’

#### *Exhibitions, &c.*

Mr. Briggs exhibited bred specimens of *Zygæna Meliloti*, accompanying them with the following remarks:—

“In 1872 and 1873 I reared young larvæ of *Z. Meliloti* from the New Forest, up to and through hybernation, but they died in the following springs; and these larvæ, from the minuteness of the markings on the ground colour, showed a great distinction from the young larvæ of *Z. Trifolii* of the same age.

“Last year (1874) I found small specimens of *Z. Trifolii* in company with *Z. Meliloti*. I therefore took especial care that the eggs I reared were from four typical pairs of (the New Forest) *Z. Meliloti*, found *in copulâ*; the eggs were (in all four cases) larger than the eggs of *Z. Trifolii*—a peculiarity I had remarked in previous years. Several of the moths I found difficult to refer with any degree of certainty to either (?) species. In the autumn many of the young larvæ had developed markings like those of *Z. Trifolii*.

“This spring (having failed in my two previous attempts), I put the *Z. Meliloti*, of which about thirty out of three hundred survived the winter, into a greenhouse, and in the result got nine pupæ; the major portion of the twenty-one others fed and grew with their companions for a while and then hybernated again. Of the nine pupæ six have now hatched and produced full coloured specimens of the small *Z. Trifolii* that I found in company with *Z. Meliloti* last year.

“The following questions suggest themselves:—

- (1) Is the *Z. Meliloti* of the New Forest a separate species or a dwarfed form of *Z. Trifolii*?

- (2) If a dwarfed form, did the additional greenhouse heat aid in developing it?
- (3). If a separate species, can the specimens I bred from have paired with *Z. Trifolii* previously?

“I may add that I have compared M. Boisduval’s description of the continental *Z. Meliloti* with the New Forest insect, and they do not agree in several particulars; and I have inspected the British Museum specimens of continental *Z. Meliloti*, and they also differ from the New Forest insect—especially in the form of the wings. The fact of the hybernation of the larva for a second year seems common. I have found it with *Z. Trifolii* and *Z. Meliloti* during the last three years, and it has been recorded of *Z. Lonicæræ*. Out of one hundred larvæ of *Z. Trifolii* that survived last winter I obtained twenty-five pupæ (most of which are out); about twenty died, and the rest resumed hybernation, in the first week in June, in a greenhouse, the average daily temperature of which is 75°, and are now hybernating and apparently healthy.”

Mr. M'Lachlan remarked that the insects of the genus hybridized very freely, and alluded to the possibility of their pairing more than once. Mr. W. A. Lewis had noticed that *Z. Meliloti* was by far the commonest insect in the part of the New Forest which forms its head quarters, and that, as it appeared to have been only discovered there of late years, it might be a stunted form which had been developed recently. Mr. Weir said that he had taken the insect twenty years ago in Tilgate Forest.

The Rev. A. E. Eaton exhibited the insects recently taken by him in Kerguelen’s Island. There were about a dozen belonging to the Coleoptera, Lepidoptera and Diptera, besides some specimens of bird-lice and fleas.

Mr. Briggs exhibited a specimen of *Halias prasinana*, which when taken was heard to squeak very distinctly, and at the same time a slender filament issuing from beneath the abdomen was observed to be in rapid motion, and two small spiracles close to the filament were distinctly dilated.

The President called attention to a living larva which he had that morning extracted from the body of a styloped female of *Andrena Trimmerana*, taken at Reigate on the 4th of June,—this larva having a long attenuated telescopic process at the anterior extremity, and two piceous reniform appendages behind, like that of *Conops*, which he had frequently reared from *Pompilus*, *Sphex* and *Odynerus*, as described by him in our ‘Transactions’ (vol. iv., ser. 2, 1858, pl. 28). These larvæ had also been met with in *Bombus* by Latreille, Dufour and others, as well as in *Osmia*, but not in *Andrena*, which moreover had been doubly victimized in the present instance, having the greater portion of the abdomen preoccupied by another invader, and thriving in spite of this and of the *Conops* larva subsequently lodged at the base.

The Secretary exhibited some specimens of a minute *Podura* forwarded to him by the Secretary of the Royal Microscopical Society, having been found on the snow of the Sierra Nevada in California.

Mr. F. H. Ward exhibited some microscopic slides showing specimens of a flea attached to the skin of the neck of a fowl, and which remained there after the death of the fowl.

*Papers read, &c.*

Prof. Westwood communicated descriptions of a new genus (*Allochotes*) of Clerideous Coleoptera from the Malayan Archipelago.

Mr. M'Lachlan read a paper entitled "A Sketch of our present Knowledge of the Neuropterous Fauna of Japan (excluding Odonata and Trichoptera)."

*New Part of 'Transactions.'*

Part 1 of the 'Transactions' of the Society for 1875 was on the table.

July 5, 1875.—Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

*Donations to the Library.*

The following donations were announced, and thanks voted to the donors:—'Fedtschenko's Travels in Turkestan,' tome ii., part 5—Neuroptera, by R. M'Lachlan; presented by the Author. 'Proceedings of the Scientific Meetings of the Zoological Society of London,' 1874, part iv.; 1875, part 1; by the Society. 'Seventh Annual Report on the Noxious, Beneficial, and other Insects of the State of Missouri, made to the Board of Agriculture, pursuant to an Appropriation for the purpose from the Legislature of the State,' by Charles V. Riley, State Entomologist; by the Author. 'The Canadian Entomologist,' vol. vii., no. 5; by the Editor. 'Newman's Entomologist' and 'The Zoologist,' for July; by the Editor. 'The Entomologist's Monthly Magazine,' for July; by the Editors. 'Exotic Butterflies,' part 95; by the Author, W. C. Hewitson, Esq.

By purchase:—'Skandinaviens Hymenoptera,' bearbetade af C. G. Thomson, vol. iii., parts 1 and 2.

The President announced the decease of Mr. Henry Doubleday, one of the Original Members of the Society; and Mr. Stainton made some remarks on his entomological labours, and on the great service he had done for Entomology in correcting the nomenclature of the British Lepidoptera.

*Election of Members.*

Alfred Forbes Sealy, Esq., of Cochin, South India, and William Borrer, jun., Esq., of Cowfold, Sussex, were balloted for and elected Ordinary Members; and W. D. Gooch, Esq., of Spring Vale, Natal, was elected a Subscriber.

*Exhibitions, &c.*

Mr. Dunning remarked that the Ornithoptera bred by Mr. Sealy from larvæ taken at Cochin, South India, and exhibited by him at a recent meeting, had been identified as *O. Minos*.

Mr. Bond exhibited two specimens of a *Curculio*, sent by Mr. Griffin from Nova Fribourgo, Brazil, which were attached to the same twig and were both attacked by a fungus. Mr. Janson said that they belonged to the genus *Hylopus*, and were well known to be subject to such attacks.

The President exhibited a lock taken from a gate at Twickenham entirely filled with the cells of a species of *Osmia*, which Mr. Smith said was most probably *O. bicornis*, of which he had known several instances in locks. The larvæ were still alive and healthy.

The President also exhibited an example of the minute *Hylechthrus Rubi*, one of the *Stylopidae*, parasitic upon *Prosopis rubicola*, recently obtained from briars imported from Epirus, and remarked upon a method of expanding the wings of *Stylopidae*. In repose these wings were rolled up in an elongate form; but he found that by pressing them gently forward from below they suddenly became erect, and then easily retained an expanded position. He further exhibited males and females of *Spilomena troglodytes* (one of the *Crabronidae*) reared from bramble stems found at Shere, in Surrey; also a series of *Halictus nitidiusculus*, stylopized, and recommended entomologists going to the south coast in August to search for stylopized *Halicti*, especially on thistles. Finally, he remarked on the parasites of *Osmia* and *Anthidium*; and exhibited two specimens of the Coleopterous genus *Zonitis* (*Z. mutica* and *Z. bifasciata*) reared from the cells of *Osmia tridentata*, and a third (*Z. præusta*) from those of *Anthidium contractum*, which latter had also produced two species of *Chalcididae* (*Leucospis dorsigera* and *Eurytoma rubicola*). He enumerated eleven insects as attacking the same *Osmia* in various stages, of which he had himself reared six species, including the two *Zonites* aforesaid, the other four being *Cryptus bimaculatus*, *Melitobia Audouini*, *Halticella Osmicida* and *Chrysis indigotea*; some of which had been recorded by Dufour and Perris, together with *Stelis minuta* and two species of *Diptera* (*Senometopia spinipennis* and *Conops flavipes*); two other *Crypti* (*C. confutor* and *C. signatorius*) being cited by Dr. Giraud. The *Zonitis* devoured the egg and pollen-paste whereon the *Stelis* also subsisted; the *Chrysis*, *Crypti* and *Senometopia* fed upon the soft larvæ externally; *Halticella* was reared within the more solid adult larvæ, whose tegument, desiccated and black (as in specimens exhibited) served for the hybernation of the parasite; the *Melitobia* destroyed the nymph in its soft state by external attack, and the *Conops* deposited its egg in the body of the bee itself after maturity. Specimens of this *Osmia* alive, and of the briars from which they were produced, were also exhibited.

Mr. Champion exhibited a series of recently captured individuals of *Chrysomela cerealis* from Snowdon, its only known British locality. Mr. M'Lachlan stated that he had recently seen this species in the Department of the Saône et Loire, in France, in great numbers, each ear of wheat having several of the beetles upon it, and remarked on the singular nature of its sole habitat in Britain.

The Secretary exhibited nests of a trap-door spider containing living inmates, sent from Uitenhage, near Port Elizabeth, by Mr. Henry W. Bidwell, a member of the Legislative Assembly of the Cape of Good Hope. The nests were not (as is usual) in the earth, but in cavities in the bark of trees, and the "trap-door" appeared to be formed of a portion of the bark, thus rendering it most difficult to detect the nests when in a closed condition. The Secretary was also informed that similar nests were constructed in door-posts and other places.

Mr. Riley, State Entomologist of Missouri, exhibited sundry of the insect pests that do so much damage in the State, including the army worm (*Leucania unipuncta*) and the Rocky Mountain locust (*Caloptenus spretus*), and entered at some length into the habits of the latter insect, and the vast amount of destitution caused by it, stating that in a short period it devoured almost every living plant, leaving nothing but the leaves of the forest trees, and converting a fruitful country into an absolute desert. From a knowledge of the habits of the insect, and believing in its inability to exist in a moist climate, he had predicted that its ravages would not extend beyond a certain line, and he had seen these predictions fulfilled almost to the letter. Having noticed that hogs and poultry grew excessively fat from devouring the locusts, and considering that the use of them as food for man would tend to relieve some of the distress occasioned in the devastated districts, he had, shortly before leaving St. Louis, organized a banquet, at which locusts, prepared in several ways (especially in the form of soup), were served up, and they were pronounced to be excellent. He distributed a number of baked locusts among the members present, but did not recommend them for food in that state, as the chitinous external tegument and the spines required to be removed before they were fit for digestion.

Mr. Riley also stated that he was very desirous of taking a supply of the cocoons of *Microgaster glomeratus* to America, to lessen the ravages of the larvæ of the genus *Pieris* on that continent, and he would be greatly obliged to any entomologist who could assist him in obtaining them.

#### *Papers read, &c.*

The following papers were communicated:—

"Descriptions of new Heteromerous Coleoptera belonging to the Family Blapsidæ." By Professor J. O. Westwood, M.A., &c.

“Description of a new Species of Lucanidæ, with a Note on *Lissotes obtusatus*.” By Professor J. O. Westwood, M.A., &c.

“Description of a new Species of Myriapod from the borders of Mongolia.” By Arthur G. Butler, F.L.S., F.Z.S., &c.

“Descriptions of new Coleoptera from Australia (Port Bowen).” By Charles O. Waterhouse.

Mr. Hewitson forwarded a note respecting a paper by Mr. Butler in the first part of the ‘Transactions’ for 1875, in which it was suggested respecting *Netrocoryne beata* and *N. denitza*, that Hewitson’s figures of those species [Exot. But., vol. v.] were wrongly numbered. Mr. Hewitson said they were numbered quite correctly, and that he believed they would be found to be the sexes of *N. beata*.

The President stated that this was the last meeting that would be held at Burlington House; and that due notice would be given to the members when the arrangements at the new Rooms of the Society at 11, Chandos Street, Cavendish Square, were completed; the Library having been already removed to that place.

Mr. Dunning proposed and Mr. McLachlan seconded a cordial vote of thanks to the Linnean Society for the permission to hold the meetings at their Rooms, so long enjoyed by the Entomological Society. This was carried by acclamation.—*F. G.*

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### Books Received.

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*The Lepidopterist’s Calendar: giving the Time when the British Lepidoptera appear in the Egg, Larval, Pupal and Imago States, with Food-plant and Habitat.* By Joseph Merrin. Second Edition, enlarged and corrected to the present time. Crown 8vo, 250 pp.

A second edition of a useful little book, but it would be greatly improved by being a little less learned; for instance, “egg” should not be latinized into “ova,” neither is “larva” so explicit as “caterpillar.” I prefer infinitely the word “chrysalis” to “pupa,” which means a *wench, damsel, girl* or *baby*; and the word “chrysalis” is classical as well as scientific: it is used by Pliny for this particular state of an insect and for nothing else: the old word was “puppa,” spelt thus with two p’s, as those who possess a copy of Haworth will find, but even that is greatly inferior in elegance and correctness to “chrysalis.” And again I would never use the word “imago” for the perfect insect; and as for the word “imagos”—I know not whether meant for singular or plural—I may safely say that there is no

such word in any language under the sun. Then again the title is very objectionable: we should use easy words for a book that we desire to see in every schoolboy's hands. Mr. Merrin has himself explained that he wished it to be a time-guide to the appearance of butterflies and moths: why not call it so? Perhaps "a rose by any other name would smell as sweet," but no other name being so familiar, we should fail to recognise the queen of flowers: it is silly to sacrifice universal intelligibility to an affectation of learning. The work, I repeat, is useful, but might be made much more so by greater simplicity in the arrangement and phraseology.

*First, Second and Third Annual Reports of the United States Geological Survey of the Territories for the years 1867, 1868 and 1869.* One Volume, demy 8vo, 260 pp., with numerous illustrations.

*Annual Report of the Board of Regents of the Smithsonian Institution, showing the Operations, Expenditures, and Condition of the Institution for the year 1873.* Washington, 1874. 452 pp. demy 8vo.

*Annual Report of the United States Geological and Geographical Survey of the Territories embracing Colorado, being a Report of Progress of Explorations for the year 1873.* By F. V. Hayden, United States Geologist. 1874. Demy 8vo, 718 pp. and numerous illustrations.

*Report of the United States Geological Survey of the Territories.* By F. V. Hayden, United States Geologist in Chief. Vol. vi. *Contributions to the Fossil Flora of the Western Territories.* Part i. The Cretaceous Flora. By Leo Lesquereux. Washington, 1874. Royal 4to, 136 pp. letterpress and thirty plates.

The plates are executed with great neatness and evident care; some of them represent ferns, and other phænogamous plants.

These admirable Reports embrace the entire range of Biology and Palæontology, and are invaluable indices to the labours of American naturalists.

*Birds of the North-West: a Handbook of the Ornithology of the Region drained by the Missouri River and its Tributaries.* By Elliott Coues, Captain and Assistant-Surgeon U.S. Army. Demy 8vo, 791 pp. 1874.

A most valuable book, manifestly tending to disturb the fanciful quinary arrangement of Vigors, and dividing birds into ten orders—Passeres, Picariæ, Psittaci, Raptores, Columbæ, Gallinæ, Grallatores, Lamellirostres, Steganopodes, Longipennes, and Pygopodes.

*The Third Annual Report of the Board of Managers of the Zoological Society of Philadelphia.* Read at the Annual Meeting, April 22, 1875.

The Report includes a plan of the gardens, and views of the carnivora buildings, bear-pits, monkey-house, aviary, and giraffes, a statement of

receipts and disbursements, a description of the menagerie, and a list of the animals acquired during each month in the year.

*Manuscript Notes from My Journal; or, Illustrations of Insects, Native and Foreign. Diptera or Two-winged Flies.* By Townend Glover. Washington, 1874.

May be called one of the "Curiosities of Literature." It is published in 4to, and contains 120 pp. and thirteen plates. It is written autographically by Townend Glover, transferred to stone, and printed by James G. Gedney. By giving the table of contents we may convey some idea of this laborious publication :—

Introduction.

Plates i. to xiii.

Arrangement of Families . . . . .	Page 1
List of Families and Genera, with Synonyms,	
Habits, Food, &c. . . . .	„ 2
„ Parasitic and Predaceous Diptera . . . . .	„ 60
„ Vegetable and Animal Substances injured by Diptera . . . . .	„ 63
„ Insects of other Orders destroying Diptera or destroyed by them . . . . .	„ 79
„ Principal Genera, with derivations of names . . . . .	„ 91
„ Principal Species . . . . .	„ 94
Remedies used or suggested, with list of Insects mentioned . . . . .	„ 101
Synoptical Tables of Sections and Families of Diptera by Dr. le Baron . . . . .	„ 113

The plates represent 533 insects in different stages, besides innumerable details, which are exquisitely engraved on copper from the author's own drawings. The very thick paper on which the book is printed will, we fear, present difficulties to the binder; but this must be an after-consideration: all I have to say is in its favour.

*Twelve Plain and Practical Articles on Marine and Freshwater Aquaria.*

By W. A. Lloyd, Superintendent of the Crystal Palace Aquarium, and Naturalist to the London Aquarium Society at Westminster.

Illustrated by fourteen woodcuts, and published in Cassell's 'Popular Recreator.'

This title gives the whole gist of the matter, and renders further explanation superfluous. I differ from Mr. Lloyd, however, in what he says about *lung-breathing* animals: an aquarium is a home artificially provided for *aquatic* animals, and has nothing whatever to do with their mode of respiration. You might as well restrict the inmates of an aviary

to a particular order of birds, as the inmates of an aquarium to one particular mode of breathing.

*Some Observations on Public Aquaria.* By W. A. Lloyd, Superintendent of the Crystal Palace Aquarium. Demy 12mo, 24 pp. Sold at the Crystal Palace. 1875.

*Official Handbook of the Marine Aquarium of the Crystal Palace Aquarium Company.* Sixth Edition. Demy 12mo, 84 pp. 1875.

*On the Principles and Management of the Marine Aquarium.* A Paper read before the Birmingham Natural History and Microscopical Society, at the Midland Institute. By William R. Hughes, F.L.S., President. Demy 8vo, 56 pp., with diagrams. John Van Voorst. 1875.

A useful and amusing little book, written from the author's personal experience.

*Index to Contents of the Tanks of the Manchester Aquarium.* By W. Saville-Kent, F.L.S., F.Z.S. Tenth Thousand. 1875.

*Synopsis of the Contents of the Tanks of the Manchester Aquarium.* By the Curator, W. Saville-Kent. Manchester, 1875. Demy 12mo, 38 pp.

Clever little unpretending tracts, designed not merely to explain to visitors what they may expect to find in the Aquarium at Manchester, but also to show to the rest of the world what the people of Manchester are doing to advance the knowledge of Aquatic Zoology.

*Bird-Life: being a History of the Bird, its Structure and Habits, together with Sketches of fifty different Species.* By Dr. A. E. Brehm. Translated by H. M. Labouchere, F.Z.S., and W. Jesse, C.M.Z.S., Zoologist to the Abyssinian Expedition. Royal 8vo, 898 pp. letterpress; ten coloured lithograph plates by J. G. Keulemans. London: Van Voorst. 1874.

A splendid volume for a drawing-room table, the name of Brehm being a sufficient guarantee for its scientific accuracy.

*The Mind of Man; being a Natural System of Mental Philosophy.* By Alfred Smee, F.R.S., Fellow of the Royal College of Surgeons of England, Fellow of the Chemical Society, Medical Officer of the Bank of England. Demy 8vo, 262 pp. letterpress, illustrated with engravings. London: George Bell & Sons, York Street, Covent Garden.

I am scarcely competent to deal with this, being more versed in the bodies of animals than in the mind of man, but may say it is a work evidently prepared with care and thought.

EDWARD NEWMAN.

*Notes on Birds which have been found in Greenland.* By ALFRED NEWTON, M.A., F.R.S., Professor of Zoology and Comparative Anatomy in the University of Cambridge.

(From the forthcoming 'Manual' prepared in accordance with instructions received from the Admiralty, and obligingly communicated by the author.)

THOUGH many authorities have been consulted in making the following compilation, it is founded mainly on the excellent "List of the Birds hitherto observed in Greenland," by Prof. Reinhardt, which was printed in 'The Ibis' for 1861 (pp. 1—19), and gives the most complete catalogue of the species of that country as yet published. Some additions to it have since been communicated by him to the Natural-History Union of Copenhagen,<sup>1</sup> and these I have here incorporated. I have further to acknowledge, with sincere thanks, his great kindness in sending me the proof-sheets of his latest contribution to the subject, made during the present year and as yet unpublished (*op. cit.* 1875, p. 127), that I might avail myself of its valuable contents. On the other hand, it must be confessed that Prof. Reinhardt's "List," though all one could desire as regards the stray visitors to Greenland, gives few or no particulars of the habitat of some of the species which regularly frequent that country, and this information I have had to supply from the work of the ill-fated Holböll,<sup>2</sup> whose long residence there as an officer of the Danish Government, and taste for Ornithology rendered him a most trustworthy authority on this head. The works of the naturalists of the last century, Bruennich<sup>3</sup> and Otho Fabricius,<sup>4</sup> have not been neglected by me, and as evidence of the completeness of the latter I may repeat Prof. Reinhardt's remark, that since its publication the number of birds known to breed in Greenland has been only increased by eleven. I have of course examined also the 'Memoir on the Birds of Greenland,'<sup>5</sup> published in 1819, by the venerable Sir Edward Sabine, and the far too meagre Natural-History Supplements to the several 'Voyages' of Parry

<sup>1</sup> Videnskabelige Meddelelser, 1864, p. 246; 1865, p. 241; 1872, p. 131.

<sup>2</sup> 'Ornithologiske Bidrag til den grønlandske Fauna.' Naturhistoriske Tidsskrift, 1843, pp. 361—457. A German translation of this memoir by Dr. Paulsen was published at Leipzig in 1846, and again reissued in 1854.

<sup>3</sup> Ornithologia Borealis. Hafniæ: 1764. 8vo, 80 pp.

<sup>4</sup> Fauna Groenlandica. Hafniæ et Lipsiæ: 1780, 8vo, pp. 53—124.

<sup>5</sup> Transactions of the Linnean Society, xii. pp. 527—559.

and of Ross—works which excite regret at the glorious opportunities so ingloriously missed through the absence of special naturalists, and only redeemed from utter opprobrium by the zeal of volunteers.<sup>1</sup> The long series of expeditions in search of Franklin's ships from the same cause was still more barren of results in respect to Arctic Ornithology, so that a single discovery of Sir Leopold McClintock's,<sup>2</sup> and the notes of Mr. David Walker,<sup>3</sup> who did not possess any special proficiency in the study, furnish almost the only increase to our knowledge of the subject gained during that period.<sup>4</sup> The different American expeditions, judging from what has been published about them, added absolutely nothing—a fact particularly to be regretted when we regard the high latitudes they successively reached. More in this respect was achieved by the Germans, and to the observations of Dr. Pansch, contained in the elaborate work of Dr. Finsch,<sup>5</sup> we owe information of some value. To various works not especially treating of Arctic Ornithology, or of the Ornithology of Davis Strait at least, there is no need for me here to refer more in detail.

It is now beginning to be recognised by ornithologists that to draw any sound conclusions from the avifauna of a country we must strictly limit our basis to the species of birds which either breed in or annually, for a longer or shorter period, frequent it, and consequently to obtain a true notion of its peculiarities all accidental stragglers should be dismissed from consideration. They are indeed eminently worthy of regard from another point of view, throwing light as they do on the general question of the wanderings of birds, but they are of little account in the aid they give to elucidating the great subject of Geographical Distribution. It has, therefore, seemed to me expedient to distinguish between these two

<sup>1</sup> The result of nearly all that was then ascertained about birds is embodied in the second volume of the well-known 'Fauna Boreali-Americana' by Swainson and Richardson. (London: 1831, 4to, 523 pp.)

<sup>2</sup> Journal of the Royal Dublin Society, 1856, pp. 57—60.

<sup>3</sup> Ibis, 1860, pp. 165—168; Journal of the Royal Dublin Society, 1860, pp. 61—67.

<sup>4</sup> The majority of such ornithological specimens as were collected during the Franklin search passed into the possession of Mr. Barrow, who subsequently gave his collection to the Museum of the University of Oxford, and a catalogue of it has been published by Mr. Harting (Proceedings of the Zoological Society, 1871, pp. 110—123).

<sup>5</sup> Die zweite deutsche Nordpolarfahrt. Leipzig: 1874. 2 vols. 8vo, vol. ii. pp. 178—239.

categories by indenting the paragraphs in which the stragglers are noticed. Without some such precaution the interspersal of stragglers among true denizens only leads to confusion, and especially would it do so in the present case when the two categories are almost equal in number, while most of the stragglers have occurred outside of the Arctic Circle, and in places lying many degrees of latitude to the southward of the tracts which the new Expedition is to explore. Still further to direct attention to these last tracts, the names of those species which, so far as one can judge, may be not unreasonably looked for in Smith Sound, and some of them thence to the northward, are distinguished by an asterisk (\*), while to the names of those which are known to breed in Greenland and yet may not be expected to occur beyond the Danish Settlements an obelisk (†) is prefixed. The native (Esquimaux) names when given by Fabricius or others are marked by inverted commas. I have further to premise that the Danish Settlements are divided into two Inspectorates, roughly speaking, separated by the 68th parallel, as well as to observe that when a species is said to be found generally or throughout Greenland the words "in suitable localities" must be understood to follow, even though not inserted.

† *Whitetailed Eagle* (*Haliaetus albicilla*). "Nektoralik," "Tertersoak."—Inhabits generally and breeds in the whole of Danish Greenland, including the eastern coast. Its northern range not as yet determined. Being the only eagle found in the country, there seems no need to give here its diagnostic characters.

*Osprey* (*Pandion haliaetus*).—A single specimen obtained (25 Sept.) at Godavn, by Mr. E. Whympere, and sent to the Museum of Copenhagen. Must be regarded as a straggler (most likely from America), since it is not found in Iceland, and has only once been known to occur in the Færoes (1848).

\* *Greenland Falcon* (*Falco candicans*). "Kirksoviarsuk-kakor-tuinak."—The white form of great northern falcon. In summer more common in the Northern Inspectorate than in the Southern, but occurring, according to Dr. Finsch, also on the Eastern Coast. The limits of its breeding range in either direction have not been determined.

† *Iceland Falcon* (*Falco islandus*). "Kirksoviarsuk-kernektok."—The darker form of great northern falcon, by some held to be distinct from *F. candicans* and *F. gyrfalco*. The northern limits

of its breeding-range have not yet been determined. A young male falcon, killed 24th September, 1872, on the Fiskenes, referred by Dr. Finsch to *F. gyrfalco*, probably belonged to this form.

† *Peregrine Falcon* (*Falco peregrinus*). “Kirksoviarsuk-millekulartok.”—Said to breed generally throughout Greenland, certainly up to lat.  $69^{\circ}$  N., and in many of the lands to the westward of Baffin’s Sea. Examples obtained by Dr. Walker, of the ‘Fox,’ R.Y.S., at Port Kennedy (lat.  $72^{\circ}$  N.), are specifically indistinguishable from European specimens.

*Merlin* (*Falco æsalon*).—A specimen caught at sea (lat.  $57^{\circ} 41'$  N., long.  $35^{\circ} 23'$  W.) in May, 1867, by Mr. E. Whymper, and by him presented to the Norfolk and Norwich Museum, seems to have reached the most western limit of the species known. A common species in Iceland; in North America replaced by the nearly allied *F. columbarius*.

*Kestrel* (*Tinnunculus alaudarius*).—One said to have flown on-board ship off Cape Farewell, on Parry’s first return voyage, and killed. (Sabine, Suppl. App. p. cex.)

\* *Snowy Owl* (*Nyctea scandiaca*). “Opik,” “Opirksoak.”—Very common; in summer more numerous in the Northern Inspectorate than in the southern. Found also on the Eastern Coast, and extends westward to Liddon Island and Melville Island ( $75^{\circ}$  N.). A thoroughly circumpolar species, migrating in winter to lower latitudes, and, from its white colour and large size, incapable of being confounded with any other species.

*Shorteared Owl* (*Asio accipitrinus*). “Siutitok.”—A scarce species in Greenland, but perhaps breeds there, though not further to the southward than  $65^{\circ}$ . Its northern range altogether unknown, but it has been shot on the Green Islands in Disco Bay, lat.  $68^{\circ} 50'$  N.

*Yellowbellied Woodpecker* (*Sphyrapicus varius*).—One found dead near Julianehaab, July, 1845; another sent from Greenland about 1858.

*Flicker or Goldenwinged Woodpecker* (*Colaptes auratus*).—Herr Möschler has recorded the receipt of a specimen from Greenland in 1852 (*Journ. für Orn.*, 1856, p. 335).<sup>1</sup>

*Chimney Swift* (*Chætura pelagica*).—One shot in 1863 near the Sukkertop (Reinhardt, *Vid. Medd.* 1865, p. 241).

<sup>1</sup> *American Night Hawk* (*Chordeiles popetue*).—One found dead on Melville Island.

*Barn Swallow* (*Hirundo horreorum*).—Two known to have been obtained, one at the Fiskenæs about 1830, the other at Nenortalik.<sup>1</sup>

*Redeyed Flycatcher* (*Vireosylva olivacea*).—One received from Greenland in 1844, and most likely from the Southern Inspectorate. Sir Oswald Mosley has recorded the occurrence of this American species in England (*Nat. Hist. Tutbury*, p. 385, pl. 6).

*Little Flycatcher* (*Empidonax pusillus*).—Two received from Godthaab in 1853.

*Olivesided Flycatcher* (*Contopus borealis*).—One shot at Nenortalik, 29 August, 1840, and sent to the Royal Museum at Copenhagen.

*Blackthroated Green Warbler* (*Dendrœca virens*).—One sent from Julianehaab in 1853.

*Yellowrumped Warbler* (*Dendrœca coronata*).—Three examples prior to 1860.

*Blackpolled Warbler* (*Dendrœca striata*).—One sent from Godthaab in 1853.

*Orangethroated Warbler* (*Dendrœca Blackburniæ*?).—A young bird shot at Frederikshaab, 16 October, 1845, has been referred to this species with hesitation owing to the bad state of the specimen.

*Particoloured Warbler* (*Parula americana*).—One sent from the Southern Inspectorate in 1857, in a very bad state, but quite recognisable.

*Nashville Warbler* (*Helminthophaga ruficapilla*).—Obtained twice: once at Godthaab about 1835, and again at the Fiskenæs, 31 August, 1840.

*Mourning Warbler* (*Geothlypis philadelphia*).—One obtained at the Fiskenæs in 1846, another at Julianehaab in 1853.

*Longbilled Marsh Wren* (*Troglodytes palustris*).—One procured at Godthaab in May, 1823.

*Rubycrowned Wren* (*Regulus calendula*).—One sent from Nenortalik in 1859.

† *Wheatear* (*Saxicola œnanthe*). “Kyssektak.”—Known to breed in Greenland from the time of Otho Fabricius, and, according

<sup>1</sup> *Sand Martin* (*Cotyle riparia*).—A pair said to have been seen on Melville Island, 9 June, 1820 (*Parry, Journal, &c.*, p. 195).

to Holböll, extending its range to lat. 73° N. and even further. Strays also to the westward, and observed by James Ross, 2 May, 1830, in Felix Harbour (lat. 70° N., long. 91° 53' W.). Obtained on Shannon Island by the German Expedition (Finsch). The peculiar distribution of this species in the northern part of the Nearctic Region has yet to be explained (*cf.* Yarrell, Br. B. ed. 4, i. pp. 352, 353).

*American Robin* (*Turdus migratorius*).—An adult male shot near Kornuk in the Godthaab Fjord (Reinhardt, Vid. Medd. 1865, p. 241).

“*Turdus minor*.”—One specimen, so named by Prof. Reinhardt, obtained in June, 1845, at Amaraglik, near Godthaab. Prof. Baird says it is difficult to say which of the three North-American species is thereby meant (*Am. Journ. Sc.*, ser. 2, xli. p. 339).

*Redwing* (*Turdus iliacus*).—One sent to Dr. Paulsen in 1845, another shot at Frederikshaab, 20 October, 1845.

*White Wagtail* (*Motacilla alba*).—One sent from the Southern Inspectorate in 1849, another obtained by Dr. Walker, at Godhavn, in August, 1857.

†*Pennsylvanian Pipit* (*Anthus ludovicianus*).—Supposed to breed in Greenland not further south than lat. 67° N., but unquestionably does so in the northern parts of the North-American continent.

*Meadow Pipit* (*Anthus pratensis*).—Received by Dr. Paulsen from Greenland in 1845.

*Shore Lark* (*Otocorys alpestris*).—One shot at Godthaab in October, 1835, but known before to occur on the other side of Davis Strait: *e. g.*, at Cape Wilson, 10 July, 1822.

\**Snow Bunting* (*Plectrophanes nivalis*). “Kopanauarsuk.”—Breeds generally throughout the country, and said to be the commonest land bird on the Eastern Coast (Pansch). Breeds also on Melville Peninsula, and is very numerous on the Parry Islands. Seen by Kane at Rensselaer Harbour in June, 1854.

†*Lapland Bunting* (*Plectrophanes lapponicus*). “Narksarmiutak.”—Also breeds generally throughout the country, as well as on Melville Peninsula and other lands to the westward of Davis Strait.

†*Whitecrowned Bunting* (*Zonotrichia leucophrys*).—Seems to be confined to Southern Greenland: not numerous, but certainly

a breeding bird, though its nest has not as yet been found in the country.

†*Mealy Redpoll* (*Linota linaria*). “Orpingmiutak,” “Anarak.”—Said to breed generally throughout Greenland, suitable localities being, of course, understood, but is *migratory* there. Seems to be indistinguishable from the *Fringilla linaria* of Linnæus, the *F. borealis* of most English authors, but not their *F. linaria*, which is a much smaller and more rufescent form.

†*Greenland Redpoll* (*Linota canescens*).—Said to be constantly *resident*, and a regular breeder, but not further south than lat. 70° N. Occurred also in Kaiser Franz-Josef's Fjord, 1 August, 1870 (Finsch). The *Linota Hornemanni* of Holböll, and possibly the *Ægiothus rostratus* of Dr. Cones.

*American Whitewinged Crossbill* (*Loxia leucoptera*).—An adult specimen procured about 1831 from the east coast by an Esquimaux. Subsequently another adult and three young were obtained in South Greenland.

*Yellowheaded Maizebird* (*Xanthocephalus icterocephalus*).—One obtained, 2 September, 1820, at Nenortalik.

*Starling* (*Sturnus vulgaris*).—A single specimen sent by Holböll. (Qu. *S. færoensis*, *Feilden*, if that be a distinct species?)

\**Raven* (*Corvus corax*). “Tullugak,” “Kernektok.”—Breeds more in South than in North Greenland, and also observed on the East Coast. Several pairs seen on Melville Island. A specimen from Beechey Island in the Barrow Collection. Noticed several times on Parry's Second Voyage.

\**Rock Ptarmigan* (*Lagopus rupestris*). “Akeiksek,” “Kauio.”—The only species of the genus which inhabits Greenland, where it occurs equally on the East as on the West Coast. Found by the German Expedition on Sabine and Clavering Islands. In great abundance on the Parry Islands, and thence southwards throughout Melville Peninsula, but its southern range west of Davis Strait still undetermined. Its specific distinctness from *L. mutus* is questioned by several authorities, but the males of *L. rupestris* (including under that name *L. Reinhardti* and *L. islandorum*) seem never to acquire entirely black feathers on the breast as do the males of *L. mutus*—the ptarmigan of Scotland and the European continent. The females and the males in winter of the different forms can hardly be distinguished.

*Corn Crane* (*Crex pratensis*).—One obtained at Godthaab and sent to the Museum of Copenhagen in 1851.

*Spotted Rail* (*Crex porzana*).—One obtained at Godthaab, 28 September, 1841; a second taken at Nenortalik was sent to Copenhagen in 1856.

*Carolina Rail* (*Crex Carolina*).—One killed at the Sukkertop, 3 October, 1822.

*American Coot* (*Fulica Americana*).—Twice obtained in Greenland, and in the same year (1854)—once at Godthaab, and once in Disco Bay. The latter example is in the Barrow Collection.

*Heron* (*Ardea cinerea*).—Said by Crantz to have been seen in South Greenland, 27 August, 1765. A young bird found dead near Nenortalik in 1856, and sent to Copenhagen.

*American Bittern* (*Botaurus lentiginosus*).—One caught by dogs during a storm at Egedesminde in 1869, and identified by its remains.<sup>1</sup>

*Oystercatcher* (*Hæmatopus ostralegus*).—One sent from Julianehaab in 1847, another in 1871 from Godthaab, and a third from Nenortalik in 1859.

\**Turnstone* (*Streptilas interpres*). “Telligvak.”—Not common according to Holböll, but breeds generally along the coast. Found by the German Expedition in Sabine Island and at Cape Broer-Ruys. Recorded from Winter Island in June, and breeds on the Parry Islands. Its quaintly marked black and white head, deep black breast, chestnut and black back, and white belly, render this one of the most easily recognised of shore-birds.

*Lapwing* (*Vanellus cristatus*).—One obtained 7 January, 1820, near the Fiskenæs; a second received from Julianehaab in 1847.

\**Gray Plover* (*Squatarola helvetica*).—Rare, but found in both Inspectorates, and, according to Holböll, increasing in numbers—an assertion which Prof. Reinhardt doubts. Said to breed on Melville Peninsula, where, according to Richardson, its eggs were obtained. Specimens of these, however, exist in very few collections, and apparently only from Siberia and Alaska. The bird is to be distinguished from the golden plover by its larger size, its deep black axillary feathers (which are very apparent in flight) and its rudimentary hind toe.

<sup>1</sup> *Brown Crane* (*Grus canadensis*).—One obtained near Igloolik 25 June.

\**American Golden Plover* (*Charadrius virginicus*). “Kajorrovek,” “Kajordlek.”—Somewhat rare in Greenland, but possibly breeds there, as it does in considerable abundance on swampy places in the Parry Islands. Seen in plenty on Parry’s Second Voyage. Not distinguished by the older writers (including Richardson) from the following species, but is always recognisable by its smoky-gray axillary feathers, and more slender form.

*Golden Plover* (*Charadrius pluvialis*).—One, in summer plumage, shot in the spring of 1871 on the Noursoak Peninsula. Believed by Dr. Finsch to breed in East Greenland. To be distinguished from the foregoing species by its pure white axillaries and somewhat stouter build.

\**Ringed Plover* (*Ægialitis hiaticula*). “Tukagvajok.”—Breeds generally in Greenland and found on Sabine and Clavering Islands. Said to be abundant on the shores of Possession Bay and Regent’s Inlet, but was perhaps mistaken for a nearly-allied species. Was found by Professors Torell and Nordenskjöld on the Seven Islands (lat. 80° 45’ N.), and therefore has possibly the highest northern range of any known shore-bird.

The “*Charadrius hiaticula*” of Richardson (App. Parry’s Second Voyage, p. 351), apparently brought from Mount Sabine, was subsequently identified by him with the North-American *Ægialitis semipalmata* (Faun. Bor.-Am. ii. p. 367)—a species believed to have been obtained in Boothia Felix on Ross’s Second Voyage, but not hitherto recognised from Greenland, where it may, however, not unreasonably be expected to occur. This differs from *Æ. hiaticula* in being smaller and slenderer, in wanting the white patch above and behind the eye, and in having a much narrower pectoral band. On closer examination also the middle and outer toes of *Æ. semipalmata* will be seen to be united at their base by a very distinct web.

*Yellowshank* (*Totanus flavipes*).—One sent from Greenland in 1854 to Herr Möschler (Journ. f. Orn. 1856, p. 335).<sup>1</sup>

\**Sanderling* (*Calidris arenaria*).—Scarce, and said not to breed further south than lat. 68°, but the young have been obtained at Godthaab. Found on the East Coast by Graah, and by the German Expedition on Sabine Island, where it was breeding. Said to have

<sup>1</sup> *Catoptrophorus semipalmatus*, Willet. A bird seen by the late Prof. Goodsir in Exeter Sound was ascribed by him to this species (Arctic Voyage, p. 145); but the matter must be regarded as doubtful in the highest degree.

been found breeding in considerable numbers on the Parry Islands; but authentic eggs have only recently been made known to naturalists (Proc. Zool. Soc. 1871, pp. 56, 546, pl. iv., fig. 2; Zweite deutsche Nordpolarfahrt, ii. p. 240), and are very rare in collections. About the size of a sky lark. May be distinguished from other sandpipers by wanting the hind toe, and from the small plovers, which have only three toes, by the mottled colouring (gray, rufous and black) of its upper plumage. The abundance of this bird during many months of the year on the coasts of the British Islands, and many other countries both of the Old and New World, together with the absolute want of any positive and trustworthy information as to the peculiarities which would seem to accompany its habits during the breeding season, and the selection of its places of nidification, render these matters deserving of close attention.

\**Gray [or Red] Phalarope* (*Phalaropus fulicarius*). "Kajok?"—Said to be the latest summer bird to arrive, to be very rare in the south, and not to breed below lat. 68° N., but thence northward to be common. Its common English name of "gray" phalarope is exceedingly inapplicable when in its summer plumage, for then the whole of the lower parts are of a bright orange-red colour, the upper parts being diversified with dark brown and tawny-yellow. The breeding habits of this bird are little known, and it would seem to be often mistaken for the next species, which is far more common, and readily distinguished by the white plumage of its lower parts—even in summer, and its more slender bill.

\**Rednecked Phalarope* (*Phalaropus hyperboreus*). "Nellou-mirsortok."—Seems to be the commonest species of phalarope throughout the country, and possibly occurs very far to the northward, though in the Arctic Regions of the Old World it does not go anything like so far as the preceding. The difference between the two birds has been given above.<sup>1</sup>

*American Stint* (*Tringa minutella*).—One shot in the spring of 1867 on Noursoak Peninsula.<sup>2</sup>

<sup>1</sup> *Phalaropus Wilsoni*, though never yet met with far to the northward, may be not unreasonably expected to occur, if only as a straggler, within the Arctic Circle. It can be readily distinguished from either of the foregoing by its longer and more slender bill and legs.

<sup>2</sup> "T. minuta." A single specimen brought home by Mr. Edwards (Richardson, App. Parry's Second Voyage, p. 354). The "T. minuta" of Dr. Walker was *T. striata*.

*Pectoral Sandpiper* (*Tringa maculata*).—One was received from Greenland in 1851 by the Copenhagen Museum, and two more examples were sent thither from Nenortalik in 1859.

† *Bonaparte's Sandpiper* (*Tringa Bonapartii*).—Believed by Holböll (according to Dr. Paulsen) to breed near Julianehaab, where small flocks of both old and young birds have been observed in August. A very young bird was obtained at Nenortalik in 1835, one undergoing the change to winter plumage in 1840, and three were procured there in 1841.

*Dunlin* (*Tringa alpina*). “Tojuk.”—Dr. Paulsen has more than once received this species from Greenland both in young and autumn plumage. It probably breeds there, as it certainly does on Melville Peninsula, and elsewhere on the coast of Davis' Strait. The dunlin of the American continent seems to be constantly larger than that of Europe, and has been described as distinct by the name of *Tringa americana*. No appreciable difference in plumage is, however, perceptible.<sup>1</sup>

\* *Purple Sandpiper* (*Tringa striata*). “Sarbarsuk,” “Sirksariar-sungoak.”—Occurs in winter even so far as the sea is open, and is of general distribution. Though not mentioned by Graah as met with on the East Coast, some twenty or thirty were seen on Sabine Island by Dr. Pansch.

\* *Knot* (*Tringa Canutus*). “Kajok ?” “Kajordlik ?”—Rare in the South, but often met with in the North: believed not to breed below lat. 68° N. Is thought to have its nest in the bays of Greenland, but authentic eggs seem never to have been obtained in that country, nor are such known to exist in collections. After the breeding season resorts to the outer islands. Is reported to have been found breeding on Melville Peninsula, and in great abundance on the Parry Islands. The large flocks of this bird which in autumn and spring throng our own coasts, as well as those of Europe and temperate North America, to say nothing of countries lying much further to the southward, while its breeding habits are not known

<sup>1</sup> There are several other species of shore sandpipers which may be not unreasonably looked for (perhaps as stragglers) in high latitudes. Little, if anything, is known of their breeding habits, and therefore the occurrence of such birds is especially worthy of attention.

<sup>2</sup> This name is also common to *Phalaropus fulicarius*, doubtless from the similarity in the colour of the summer plumage of the two species. The knot, however, is at least twice as large as the phalarope. In Iceland, where both birds occur, they are equally confounded by the natives.

with any certainty, render it especially an object of interest; and any light that can be thrown on its place and mode of nidification will be most valuable, for there is no common bird respecting the summer haunts of which ornithologists are at present more ignorant. About the size of a large snipe, but with much shorter bill and legs; it is in summer of a bright orange-red on all the lower parts, and above mottled with black, reddish brown and white, the rump being white or white tinged with red. In its chief breeding quarters, wherever they may be situated, it must be numerous, judging from its abundance at other times of the year. Large flocks are known to occur in Iceland, but these do not stay there many days and pass on—obviously to the northward. It has not been met with on the east coast of Greenland nor in Spitzbergen; the presumption, therefore, is that the countries to the west or north of Greenland are the goal of its vernal migration.

*Brown Snipe* (*Macrorhamphus griseus*). One sent from the Fiskenæs in 1824.

*Common Snipe* (*Gallinago media*).—One received by Dr. Paulsen in 1845, but the species has been so often observed in Greenland, that it may very likely breed there, though positive information as to the fact is not forthcoming.<sup>1</sup>

*Blacktailed Godwit* (*Limosa ægocephala*). “Sargvarsurksoak.”—Fabricius seems to have seen a single specimen, and one is said to have been obtained at Godthaab prior to 1820.

*Esquimaux Curlew* (*Numenius borealis*).—Two specimens supposed to have been of Greenland origin have been received at Copenhagen; one was brought in 1858 and was said to have been shot at Julianehaab; about the other Prof. Reinhardt knows nothing.<sup>2</sup>

*Hudsonian Curlew* (*Numenius Hudsonicus*).—One sent from Godthaab many years since by Holbüll, who says he had seen two others from Julianehaab and the Fiskenæs respectively.

*Whimbrel* (*Numenius phæopus*). Nearly a dozen examples, sent from all parts of the country, have been received, and, though

<sup>1</sup> The American snipe (*Gallinago Wilsoni*), which very closely resembles our own bird, but differs in possessing sixteen instead of fourteen tail-feathers, may perhaps be looked for to occur in Greenland.

<sup>2</sup> Three individuals of a species of *Numenius* flew past the ships' boats in Regent Inlet. (Sabine, Suppl. App. p. ccx.)

Holböll doubts its doing so, Prof. Reinhardt thinks that this species may breed in Greenland.

\**Arctic Tern* (*Sterna hirundo*). “Imerkoteilak.”—Breeds in various suitable localities on both coasts of Greenland, as well as on the western shores of Baffin’s Bay.

\**Sabine’s Gull* (*Xema Sabinii*).—Said not to breed further south than lat. 75° N. and appears not to be common in Danish Greenland, but was found by Sir E. Sabine breeding in great numbers on three small islands in lat. 75° 30′ [*qu.* Sabine Islands in Melville Bay?] associated with the arctic tern. Many specimens were obtained in June and July at Winter Island and Aulitiwick, where subsequently flocks were seen flying high, as if migrating to the southward. Has been found breeding in North-Western America, but nothing has yet been recorded of its habits in that quarter. Sir E. Sabine informed Richardson that he killed two in Spitsbergen, and the latter says that the specimen brought thence was in full summer plumage, but it has not since been observed by others in that country. Dr. von Middendorff found it breeding abundantly at the mouth of the Taimyr, again in company with the arctic tern. The fact of these two species resorting to the same spot in localities so far apart should put observers on their guard against the possibility of confounding the nests and eggs of each. The eggs of this gull are extremely rare in collections, and such as have been seen do not so much differ from those of the tern (which are common enough) as to obviate the need of the most careful identification. This gull is of small size, and may be distinguished from others by its gray head, black collar and forked tail. From the arctic tern it may be known by its stouter build, less pointed wings and tail, and black bill and feet, the former having a yellow tip—the tern having the bill and feet red, while in it the dark colour of the head is confined to a cap and does not extend below the eyes.

\**Cuneatetailed or Ross’s Gull* (*Rhodostethia rosea*).—One of the rarest of birds, to be distinguished from other gulls by its small (almost dove-like) black bill, white head and neck, with a black ring round the latter, and wedge-shaped tail—the plumage, especially of the lower parts, deeply tinged with rose-colour. Four specimens have been received from Greenland by the Museum of Copenhagen, of which three were shot in Disco Bay, and the fourth near the Sukkertop, while a fifth is believed to have been obtained by

Holböll. Originally discovered at Alágnak, in Melville Peninsula, where two examples were killed. Nothing whatever is known of the breeding habits of this species, and only three examples are believed to exist in this country, one of which is said to have been killed in Yorkshire. It has occurred once in Heligoland, and once in the Færoes. The only specimen known on the continent of Europe is in the Museum of Mainz, and there appear to be none in America.

\**Ivory Gull* (*Pagophila eburnea*). "Nayauarsuk."—The well-known circumpolar "ice-bird" needs no description, but long as Arctic navigators have been acquainted with it, its nest seems to have been undiscovered until 1853, when Sir L. M'Clintock found one on Cape Krabbé (lat. 77° 25' N.), containing a single egg (*Journ. R. Dubl. Soc.*, i. p. 57, pl. 1). Subsequently two eggs were obtained by one of the Swedish Expeditions in Spitsbergen, and these seem to be the only authenticated specimens that have been brought to the notice of naturalists. The bird itself is far from being uncommon in collections, and in some parts of the Arctic Regions is pretty plentiful. It is subject to some variation in size, and especially in the relative dimensions of some of its parts, but there is no good reason to suppose that there is more than one species of the genus.

\**Kittiwake* (*Rissa tridactyla*). "Tattarak."—Breeds in both Inspectorates, but more commonly in the Southern. Recorded by Graah from the Eastern Coast of Greenland, though not observed there by the German Expedition. Its limits to the northward have not been laid down. The black quill-feathers of its wings are an unfailing distinction between this gull and any other of its size likely to be met with far north.

*Herring Gull* (*Larus argentatus*).—An accidental and extremely rare bird in Greenland, where it can only be a straggler, and is not known to have occurred further north than Godthaab. Dr. Walker says he saw it at Frederikshaab. A pair observed at Winter Island, 29 June, 1822. Larger than the preceding species, but like it has black primary quills. A doubtful species (*L. affinis*, Reinhardt), with a darker back, is said to have been obtained in Greenland, while on the other hand a form, with a paler back (*L. chalconotus*, Licht.)—of which only three specimens have been procured,—seems to indicate a transition to the next.

\**Iceland or Lesser Whitewinged Gull* (*Larus leucopterus*). "Nayangoak."—Breeds in both Inspectorates, but more commonly in the Southern. Also observed on the East Coast, and said to breed on the Parry Islands. In Greenland it is reported to be the most common gull after the kittiwake. Its comparatively small size, pale blue mantle (which, however, is subject to some variations of shade), and white primaries distinguish this species from any other. Immature birds vary greatly in the intensity of the brown clouding of the plumage.

\**Glaucous Gull or Burgomaster* (*Larus glaucus*). "Naya," "Nayavek," "Nayainak."—The most common large gull in Greenland. At Najartut, south of Godthaab, said to breed by itself, but most generally in company with *Rissa tridactyla* and *L. leucopterus*. Subject to the same variation of shade as the latter, but the existence of species called *L. arcticus* and *L. glacialis* has not been confirmed. Found also on the west side of Davis' Strait and the East Coast of Greenland, and said to be as numerous in the Polar Sea as it is in Davis' Strait.

†*Great Blackbacked Gull* (*Larus marinus*). "Nayardluk," "Nayardlurksoak."—Breeds generally throughout Danish Greenland, but most commonly between lat. 63° and lat. 68°. As large as the preceding species, or larger, but easily distinguished therefrom by its black back and primaries.

*Great Skua* (*Stercorarius catarrhactes*).—Seen twice on the south coast by Holböll.

\**Pomatorhine Skua* (*Stercorarius pomatorhinus*).—Said to be the commonest species of skua in the north. Breeds in societies from Bjornenæs, north of Egedesminde, to the northward. Several were killed in Regent Inlet, and it was also seen on the Parry Islands, but more rarely than the next species. Authenticated eggs of this bird are rare in collections. It is easily distinguished in flight by the peculiar formation of the two middle tail-feathers, which are twisted near the tip, so as to take a vertical direction, and give the appearance of a disc or ball attached to the bird's tail.

\**Common Skua* (*Stercorarius parasiticus*). "Isingak," "Meriar-sairsok."—Breeds in both Inspectorates, but most commonly in the Southern. Found on the East Coast by Graah, but not by the German Expedition. Obtained also on the west coast of Davis' Strait. Equally abundant in the Polar Sea as in the latter. To be distinguished from the preceding species by its smaller size and

perfectly straight tail. This and the next species appear to be “dimorphic,” a wholecoloured<sup>1</sup> and a particoloured bird being often found paired, and the difference in plumage seems to be irrespective of sex or age; but on this point further information is desired.

\**Buffon's Skua* (*Stercorarius longicaudatus*).—Said not to breed further south than lat. 70° N. One example obtained by the Germans. To be distinguished from the last species by its smaller size, more slender bill, and, even on the wing, by its exceedingly long tail. Would seem to be rather less “dimorphic” than *S. parasiticus*.

\**Fulmar or Mallemoke* (*Procellaria glacialis*). “Kakordluk,” “Kakordluvek;” dark variety, “Igarsok.”—Said not to breed further to the south than lat. 69° N. Occurs also in East Greenland (Pansch). A very unmistakable bird, but worthy of attention, since individuals vary a good deal in the shade of colouring. The young are supposed to be darkest in hue, but some seem to keep this sign of immaturity all their life.

†*Greater Shearwater* (*Puffinus major*). “Kakordlunguak.”—Marked by Prof. Reinhardt as breeding in Greenland, and said by Holböll to be found in great numbers from the southern point of the country to lat. 65° 30' N.; the eggs of this bird are utterly unknown. Shearwaters of some species have many times been noticed in abundance off Cape Farewell.

*Gray Shearwater* (*Puffinus Kuhli*).—Only known from Greenland by a specimen received thence by Herr Möschler and now in the Leydon Museum (Schlegel, Mus. Pays-Bas, *Procellariæ*, p. 24).

*Manks Shearwater* (*Puffinus anglorum*).—Once received from Greenland. The changes of plumage undergone by shearwaters seem to be somewhat analogous to those of the skuas, and no ornithologist at present has been able to give a rational explanation of them.

†*Forktailed Petrel* (*Thalassidroma Leachii*).—Constantly observed near the coast to lat. 64° or 65° N., and most frequently about the entrance of Godthaab Fjord, on the islands of which it is said to breed.<sup>2</sup>

<sup>1</sup> It is to this wholecoloured form that the name *S. richardsoni* properly applies.

<sup>2</sup> Two examples of the common stormy petrel (*Procellaria pelagica*), with the locality “Groënland” are contained in the Museum of Leyden, having been received direct from Holböll, who doubtless obtained them on one of his voyages, but whether in the Greenland seas is another matter.

*Bulwer's Petrel* (*Thalassidroma Bulweri*).—Only known from Greenland by a specimen received thence at the Museum of Leyden (Schlegel, Mus. Pays-Bas, Procellariæ, p. 9), from the Moravian missionaries.

\**Puffin* (*Fratercula arctica*?). “Killangak.”—Puffins seem to be nowhere common in Greenland, and are said by Holböll not to breed further south than lat. 63° 30' N., which seems a questionable assertion. Whether two species are found there is also a doubtful matter.<sup>1</sup> The puffin of Spitsbergen appears to the compiler to be justifiably separable from that which inhabits more southern stations in Europe on account of its much larger size, and to it should probably be assigned the name of *F. glacialis* (Leach), but the type of that supposed species is said to have been received from Greenland, whence Cassin also says he has seen it. On the other hand, Prof. Reinhardt says that all the puffins he has examined from Greenland belong to the common species *F. arctica*. The difference between the two is admittedly only one of size, though that difference is great. A series of specimens which would help to clear up this matter is something to be desired.

\**Black Guillemot or Greenland Dove* (*Uria grylle*). “Serbak,” “Sergvak”; (in summer) “Kernekungojuk,” “Kernekarsuk”; (in winter) “Kakortungojuk.”—Very numerous on both coasts of Greenland, and said to remain longer than any other bird. Plentiful also on Melville Peninsula, but more rarely seen in the Polar Sea. The distribution of the various species of black guillemot (which it may be observed is, except in the breeding plumage, anything but “black”) is matter deserving of the fullest attention. The ordinary form from Spitsbergen is of slender build, and has the wing-spot in the adult purely and entirely white. That of the Norwegian and British coasts (*U. grylle, vera*) is stouter, and has the white feathers of the wing-spot with black at the base, but this colour does not show outwardly. That of the North Pacific (*U. Columba*) has a distinct black bar across the wing-spot, while another form (*U. Carbo*) is altogether black. Now a specimen not to be distinguished from the typical *U. Columba* was obtained in the Spitsbergen Seas by Dr. von Heuglin, and Holböll says he has seen in Greenland an entirely black example, which, therefore, may perhaps be regarded

<sup>1</sup> The tufted puffin (*Fratercula cirrhata*), a bird of the north-west coast of North America, is said to have been received from Greenland (Möschler, Journ. f. Orn. 1856, p. 335); but there is most likely some mistake about it.

as *U. Carbo*. Whether these were exceptional varieties of the normal form, or examples which had accidentally wandered from their proper habitats is a question which cannot be decided—but in the latter case the question has an important geographical aspect, as tending to show the occasional means of water communication between opposite parts of the circumpolar region.

\**Rotge or Little Auk* (*Mergulus alle*). “Akpalliaruk,” “Kaer-rak.”—Said not to breed further south than lat. 68° N., but, though its great stations are in the northern parts of Baffin’s Sea, not to be common in the Polar Sea. Found also in East Greenland.

†*Willock or Common Guillemot* (*Alca troile*).—Two examples sent by Holböll from Godthaab, where, and perhaps in other places on the coast, it breeds, but still, to all appearance, very rarely. Its variety, *A. lacrymans*, seems to be still more rare in Greenland.

\**Bruennich’s Guillemot* (*Alca arra*). “Akpa.”—Doubtless the commonest bird on the Greenland coasts, but said not to breed south of lat. 64° N. Occurred on Parry’s Second Voyage. Holböll met with three specimens entirely black, two near Godthaab and one at the Sukkertop, but all in winter! Some recent writers have most unreasonably questioned, or even denied, the specific distinction of this and the foregoing.

†*Razorbill* (*Alca torda*). “Akparnak,” “Akpartluk.”—Not rare either in the Northern or Southern Inspectorate, but not hitherto observed on the East Coast.

*Gare-fowl or Great Auk* (*Alca impennis*). “Isarokitsok.”—The earliest discovery of this remarkable and interesting species in Greenland was in or about the year 1574, when an Icelander, by name Clemens, visited certain islands on the east coast, then called Gunnbjarnareyjar, and since identified with Danell’s or Graah’s Islands, lying in lat. 65° 20’ N., whereon he found it so plentiful that he loaded his boat with the birds. It has not since been known to occur on that coast. Bruennich, in 1764, did not mention Greenland as a locality for it. Fabricius, in 1780, while giving its Esquimaux name, says that it was rarely seen on the outer islands, and that in winter; he had, however, examined a young bird, only a few days old, taken in August. Old birds, he adds, were very rare. The Museum of Copenhagen possesses a specimen, said to have been killed on Disco in 1821, but this is very possibly

that which is known to have been procured by Heilmann at the Fiskenæs in 1815. The last examples with certainty known to have existed were killed on Eldey, off the south-west point of Iceland, in 1844.

*Horned Grebe* (*Podiceps auritus*).—A few immature specimens have been obtained in the southern part of Greenland.

*American Rednecked Grebe* (*Podiceps Holbœlli*).—This New-World representative of the Old-World *P. griseigena*, was first described as a distinct species from specimens obtained in Greenland, but its specific validity is questioned by many ornithologists. It seems to have occurred three times in that country.

\**Redthroated Diver* (*Colymbus septentrionalis*). “Karksauk.”—Found on the East Coast and breeds in both Inspectorates, as also on the western coast of Davis Strait.

†*Great Northern Diver* (*Colymbus glacialis*). “Tudlik.”—Observed by Graah on the East Coast, on the West breeds generally, but more in the South than in the North, where indeed it seems to be rare. Examples of this bird from the Fur Countries and west of North America, with a pale-coloured bill, have been described as forming a distinct species, under the name of *C. Adamsi*, but the like are to be met with in Europe.<sup>1</sup>

*Gannet* (*Sula bassana*). “Kuksuk.”<sup>2</sup>—Accidental and rare.

*Cormorant* (*Phalacrocorax Carbo*). “Okaitsok.”—Said by Holbœll to breed from the Godthaab Fjord northward so far as he had been. Observed also on the East Coast.

\**Redbreasted Merganser* (*Mergus serrator*). “Pajk,” “Nyaliksak.”

†*Barrow's Goldeneye* (*Clangula islandica*). “Kærtlutorpiarsuk,” more properly “Niakortok.”—Breeds in South Greenland only, and apparently not further north than Godthaab.

*Buffelheaded Duck* (*Clangula albeola*).—One obtained at Godthaab about the year 1830.

†*Harlequin Duck* (*Histrionicus torquatus*). “Tornaiarsuk.”—Observed on the East Coast: most common between lat. 62° and 65° N., rarer to the northward. The male of this species, from its

<sup>1</sup> The blackthroated diver (*Colymbus arcticus*) was found in considerable numbers in Parry's Second Voyage.

<sup>2</sup> This name seems to be also applied to the swan.

singularly marked plumage, cannot be confounded with any other species; the female is known by its dusky head and the white spot on either side.

\**Longtailed Duck* (*Harelda glacialis*). “Aglek.”—Common on the whole coast, and breeds also on the Parry Islands and on the land westward of Davis Strait. The long tail of the male sufficiently distinguishes it from that of any other duck; the female has a white or dirty white head with dusky spots.

*Scaup Duck* (*Fuligula marila*).—Dr. Walker, of the ‘Fox,’ R.Y.S., obtained one at Godhavn, in August, 1857. Three specimens were sent from Nenortalik in 1859.<sup>1</sup>

*American Scaup Duck* (*Fuligula affinis*).—A pair was shot in June on Innusulik, an islet some ten miles from Egedesminde. It may possibly breed in Greenland.

*Surf Scoter* (*Edemia perspicillata*).—A few specimens have been obtained from the Danish settlements. It was observed by Graah on the East Coast.

\**Eider* (*Somateria mollissima*?). Male, “Amaulik”; female, “Arnauiak,” “Mittek.”—Common along all the coasts, northern limit unknown. In the eider of the New World (*S. Dresseri*), regarded by Mr. Sharpe as distinct from that of the Old, the bill is more gibbous, and the bare space behind the nostril more extended, than in the European bird. The eider of Davis Strait, and thence northward, will probably be found to belong to the American form, but the eider of the East Coast of Greenland is very likely to be the European. The eider of Spitsbergen has also been separated from *S. mollissima* by Dr. Malmgren under the name of *S. thulensis*, but the asserted difference between them, if it can be maintained at all, is but slight. In Western Arctic America occurs a very good species, the *S. V-nigrum*, larger than *S. mollissima* or *S. Dresseri*, and the male having a black chevron under the chin, as in that of the following.

\**King Duck* (*Somateria spectabilis*). “Siorakitsok”; male, “kingalik”; female, “kaiortok,” “arnauiartak.”—Said not to breed further south than lat. 67° N., but in some numbers at lat. 73°. Also on the East Coast of Greenland and on the western shores of Davis Strait. Breeds abundantly on the Parry Islands. The male easily distinguished from other species of the genus by its gray

<sup>1</sup> The tufted duck (*Fuligula cristata*) is said to have been obtained, at Godhavn, by Dr. Walker, but this was probably a mistake.

head and protuberant nasal disc. The female much resembles that of *S. mollissima* or *S. Dresseri*, but is smaller and more ruddy, and the sides of the bill are not feathered up to the nostrils, while the central nasal ridge extends as far as the nasal openings. Identified eggs of the king duck are scarce.

†*Wild Duck* (*Anas boschas*). “Kærlutok.”—Breeds in both Inspectorates, and is not rare.

*Pintail* (*Anas acuta*). “Kærlutorpiarsuk.”—Of accidental but not very rare occurrence.

*Teal* (*Anas crecca*). “Kærlutorpiarsuk.”—A few examples have been killed at different places among the Danish settlements.

*American Teal* (*Anas carolinensis*).—Four specimens are known to have been obtained in South Greenland prior to 1860.

*Wigeon* (*Anas Penelope*).—A young drake sent by Holböll in 1851. Prof. Reinhardt has seen two others also killed in South Greenland.

\**Brent Goose* (*Bernicla brenta*). “Nerdlek.”—Said not to breed in Greenland lower than lat. 70° N., but does so in great numbers in the Polar Sea. Is the smallest species of goose found in the Arctic Regions, and easily distinguished by its black head and neck, each side of the latter having only a small semilunar patch of white. In the form called *B. nigricans*, which, though most common on the Pacific coast of North America, also occurs on the Atlantic, the black of the throat extends lower down and over part of the breast, and the white patches of the neck almost or quite meet in front.

*Bernacle Goose* (*Bernicla leucopsis*).—A regular autumnal visitor at Julianehaab, and may perhaps breed in Greenland. Recorded also by Graah from the East Coast. The breeding of this species in a wild state seems only to have been observed by Dr. von Middendorff in Siberia, though eggs laid by tame birds are common enough. Two or more forms intermediate between this and the next species have been described. It may possibly happen that the bernacle goose of the New World hitherto attributed to *B. leucopsis* is distinct.

*Canada Goose* (*Bernicla canadensis*?).—A specimen, supposed to be from Greenland, in the Museum of Copenhagen, has been doubtfully assigned to this species, which is perhaps

the biggest goose known. It may possibly, however, be the *B. Hutchinsi*, which is said to be distinguishable from the true *B. canadensis* by the possession of *sixteen* instead of *eighteen* tail-feathers. But the American geese of this form have not as yet been clearly differentiated, and it seems impossible to furnish a true diagnosis of the supposed species which have received the name of *B. leucopareia* and *B. leucolæma*.

\**Snow Goose* (*Chen hyperboreus*).—A few young birds only have been seen, and these more frequently in the Northern Inspectorate than in the Southern. Is found also on the west coast of Davis Strait. Probably breeds in the far north, but a doubt may perhaps be entertained whether the examples killed in Greenland belong to the true *C. hyperboreus* or to *C. albatrus* (if these be really distinct), which is said to have occurred in Ireland.

†*American Whitefronted Goose* (*Anser Gambeli*). “Nerdler-nak.”—Not rare in fresh water between lat.  $66^{\circ}$  and  $68^{\circ} 30'$ , and also observed by the German Expedition on the East Coast. Though the whitefronted goose of Greenland has been generally assigned to the European form, *A. albifrons*, it would seem to belong rather to the larger American *A. Gambeli*; but the difference between the two appears to be that of size only. The true *A. albifrons* is a regular visitant to Iceland, and therefore the specimen obtained by Dr. Copeland on the East Coast may well belong to that form, though it does not follow that the birds which frequent the West Coast are of the same form.

*Wild Swan* (*Cygnus ferus*?) “Kuksuk.”—The swan which occurs occasionally in Greenland has been generally referred to the European species (*C. ferus*), but that which was observed at Igloolik, on Parry's Second Voyage, and is said to breed on the Parry Islands (though not numerous), seems more likely to be one of the American species, *C. buccinator* or *C. americanus*. Hence a reasonable doubt may exist as to which of the three the Greenland examples are.

From the foregoing list it will be seen that, while *sixty-two* of the birds therein enumerated are nothing but stragglers to Greenland, the number of those which may be called denizens of the country cannot be raised above *sixty-three*, to reach which we must even, in some cases, stretch a point. That Greenland, so far as its birds are concerned, belongs to the Nearctic Region has long been

known, and the fact in respect of the *species* can be most conveniently shown thus:—

	Species belonging to the Old World.	Species belonging to the New World.	Species common to both Worlds.	Doubtful.
Stragglers ...	19	34	8	1
Inhabitants ...	5	11	45	2

The result with regard to the *genera* under which the species are named is not very different:—

	Genera belonging to the Old World.	Genera belonging to the New World.	Genera common to both Worlds.
Stragglers ... ..	2	12	24
Inhabitants ...	0	2	45

Turning to the range of the species in Greenland itself, we find that of the 62 stragglers only 9 are known to have penetrated to North Greenland, while the localities whence 13 were procured are not named. Supposing that the same proportion of northern stragglers exists among the 13 of which no particulars have been given as among the 49 of which we know the locality, the number of stragglers to North Greenland may be raised to 12, all of which may reasonably be supposed to have passed through the limits of South Greenland. Four-fifths of the stragglers named in this list may accordingly be safely dismissed from our mind, when considering even the casual visitors to that part of Greenland which lies nearest to the scene of the new Expedition's labours. The remainder are not Arctic birds in any sense, since they have not crossed the Polar Circle, and indeed many of them have hardly been within 400 miles of it.

Then of the regular denizens, which, taking the highest estimate, cannot be put at more than 63, we find that 16—or nearly one-fourth—do not occur within the Polar Circle, and are therefore not entitled to the name of Arctic birds. The remaining 47 are recorded as inhabiting North Greenland, but their northward extension is uncertain. Considering, however, what is known of them in other

parts of the world, and various facts which seem to bear on their geographical range, we may arrive at something like an approximation of the number which may not unreasonably be looked for in Smith Sound. Yet, making the most liberal allowance, this number cannot be raised above 36,<sup>1</sup> and to these 36 species—should attention be particularly directed—how much further in the direction of the Pole any of them may go it is of course impossible to forecast. The principal features by which each may be distinguished have been briefly noticed by me, and, I trust, in a way that may lead to an easy and correct determination even by those observers who are not professed naturalists.

Magdalene College, Cambridge,  
20 March, 1875.

*Notes on the Natural History of South Africa.*

By R. B. and J. D. S. WOODWARD, of Natal.

(Continued from S. S. 4553.)

*Vultures.*—Captain Hadfield, in an excellent article entitled “Olfactory Powers of the Vulture” (Zool. S. S. 4373), disputes the opinions of Mr. Waterton and Dr. Bree, who maintain that the vulture discovers its prey entirely by scent. As far as our own experience goes, we can quite corroborate your correspondent’s theory. The evidence adduced by Mr. Waterton seems to us very inconclusive; tainted currents, as is well known, do not rise far above the surface of the earth, and they would be dispersed long before they could be perceived by a bird at such an enormous altitude. We have observed that the carcase of a dead animal will be left to rot in the bush under cover without attracting the vultures in the neighbourhood; on the other hand, we have proof that vultures do not only feed on fresh meat, but will even attack or kill young or weak animals. Every one knows how far the power of vision in the Falconidæ surpasses that of human sight: we have often been struck with the astonishing facility by which hawks sight their prey—locusts, mice, and other small animals, almost concealed by the long grass—whilst hovering aloft. No doubt a flock of vultures

<sup>1</sup> I am quite aware that this allowance is too great, but I think it best to err on the safe side. If the Expedition meets with thirty species in Smith Sound it will surpass expectation. The number of species, including stragglers, at present known to have occurred in Spitsbergen does not exceed thirty.

hunt for food in the manner suggested by Capt. Hadfield. Whilst residing at Dronk-Vlei we used to lose a considerable number of sheep by the attacks of the griffon vulture (*Gyps Kolbii*): these birds would not molest the sheep so long as they remained together, but a ewe or lamb having become separated from the main body, two or three vultures would swoop down and tear the wretched animal to pieces or leave it sadly mutilated. A Dutchman living some distance off used to complain of the same pest. Some time ago, on visiting a gentleman owning extensive sheep-runs thirty miles from this, we found him out with his fowling-piece endeavouring to get a shot at a troop of vultures which had alighted near his flock of sheep. He informed us that at the lambing season they did a great deal of damage, and that it was necessary to use great care to keep the sheep from straying. These birds sometimes, though seldom, make their appearance along the coast. The Kafirs say that immediately a cow is slaughtered they may be seen assembling, not one having been visible previously. Mr. Layard agrees with this, and says, "On killing a springbuck or any animal it is curious to see how they come trooping in a lengthened string from this place (Nel's Poort) to their anticipated banquet; although not one may be visible when the shot is fired, in seven or eight minutes hundreds will be gliding to the spot."

The Griffon Vulture (*Gyps Kolbii*) is called here the "Aasvogel," and is certainly the commonest vulture in Natal. It is of a yellowish gray colour; the quill-feathers of the wings and tail are black; the head and neck are covered with white down fringed by a ruff of short white feathers. It is a large bird, measuring three feet six inches in length. A numerous colony has established itself in the high precipices over the Umtwalumi River, where in the clefts they lay two or three whitish eggs. Vultures do not seem to carry off any portion of the carcase they have been feeding on, but will return day after day until it is finished.

*Secretary Bird* (*Serpentarius reptilivorus*).—We take the following description from one we shot the other day in this neighbourhood: it was roosting in a tall tree along with its mate:—Length three feet three inches; expanse of wing six feet; legs two feet; colour of the bill and legs white; face bare of feathers, deep orange; the crest six inches long, slate-coloured, tipped with black; rump black; back and wing-coverts slate; pinions, neck and breast nearly white; belly and thighs black, each feather tipped with

gray; tail broadly barred with black, gray and white. The secretary bird is scattered throughout the whole of South Africa: we often meet with pairs in the open country, where they add to the beauty of the landscape, their upright figures being seen dotting the grass veldt a long way off. It requires careful stalking to come up with them, being always on the alert, for although they seldom use their wings they soon leave their pursuer far behind by the strength of their powerful legs. To judge by the contents of the stomach of the above-mentioned, this bird must be of great service in clearing the land of hosts of snakes: we found the remains of four snakes, several lizards, two rats, and a number of locusts. The secretary bird builds a large nest of sticks, to which it returns every year and lays two large eggs, white, slightly spotted with red.

*Trogon* (*Trogon narina*).—The trogon is conspicuous among the birds of Natal for its gaudy plumage: the upper parts and the fore part of the breast are shining green, below bright red; wings gray, quills brown; the length is one foot, of which the tail is seven inches. The favourite haunt of the trogon is the darkest parts of the forest, where it safely flits from bough to bough. During the breeding season it keeps up almost incessantly a loud mournful note. Its habits are bold and fearless: it sometimes alights on a branch close to you; but still there is some difficulty in procuring a perfect specimen, as the feathers are so loosely attached to the skin that the smallest charge of dust-shot is apt to separate them. This superb bird is a valuable addition to any collection; but unfortunately its bright colours fade somewhat in this warm climate. They nest in a hole of a tree, and lay three or four white eggs, about the size of that of a pigeon. Layard says they feed on fruits as well as insects, but the stomachs of those we examined contained only beetles and caterpillars: we have frequently watched them darting from their roost after their passing prey, like fly-catchers.

*Goatsucker* (*Caprimulgus Natalensis*).—This is the only species of goatsucker we have observed in this district, but others are said to be natives of South Africa: they appear to differ little from one another. This bird is nine and a quarter inches in length; its plumage is mottled very similarly to the others of its tribe, the most distinguishing feature being a broad buff-coloured collar. The stomach of one we shot to-day contained the elytra of a great

variety of Coleoptera. It is a very common bird in this country, and on any fine night its clear musical voice is heard breaking the silence with quite a pleasant song: it was some time after arriving here before we could believe that the notes really proceeded from a nightjar. Like its European cousin it flies about after the moths and other nocturnal insects; but when the sun re-appears it retires and lies close under the ferns and bushes. We once disturbed a female sitting on two eggs; they were the size of those of the common thrush, pinkish white, spotted with red; they were laid in a hollow in the ground, with no pretension of a nest. The bird seemed to be asleep or dazzled by the light of the sun, and let us almost touch her without stirring.

*Pigeons.*—We have obtained specimens of a good many of the Columbidae, of which a great variety are found here.

Green Pigeon (*Treron Delalandi*).—The green pigeon is a showy bird, twelve inches in length; head, back, wing-coverts and rump deep green; neck and breast ashy, brightening into yellow on the vent; shoulders and under tail-coverts brick-red, the latter blotched with white; wing-quills black, edged with yellow; feet red. This pigeon flies in small flocks, keeping mostly in the trees: it is wild, and not easily surprised, except by watching their roosting places of an evening, when a few pairs are often bagged. They are good eating, and are generally very plump. We have not heard this bird “coo,” but its shrill call is rather musical. It lives chiefly, if not entirely, on a kind of wild plum which grows on a lofty tree.

Black Pigeon (*Columba arquatrix*).—The largest pigeon, we believe, found in South Africa is known here, from its dark plumage, as the “black pigeon.” Its length is fourteen inches; general colour purple-brown, spotted on the wing-coverts, breast and belly with white; head, neck and vent ash-coloured; bill and feet bright yellow. Vast flocks of these birds collect as the winter approaches, probably preparing for migration, as they disappear during our colder months. The stomachs of those we shot were crammed with tree-seeds and grain: they were in excellent condition, and the flesh is superior to that of most pigeons. With regard to their nesting, Mr. Layard says it breeds in mountain ravines, and lays four eggs, only two of which are hatched: the nest is a loose structure of sticks.

Slate-coloured Pigeon (*Columba Guinea*).—The slate-coloured pigeon is extremely common, and widely distributed over the

colony. We have not a specimen by us, but the general colour is cinereous, and its size is about twelve inches. When the grain is ripe the farmer has to look very sharp after his crops, as these birds do much damage, alighting in great numbers on the fields, and even when the corn begins to shoot they will pull it up; for this reason we have more than once had to replant large portions of our land. These birds are easily shot; a single discharge will frequently knock over several when on the ground engaged in feeding. An egg brought to us was white; in size rather smaller than that of the cushat.

Ringed Turtle Dove (*Turtur capicola*).—The ringed turtle dove is closely related to the bird that we have kept in cages in England, and that can be bought at any bird dealer's: it breeds readily in confinement. It is about a foot long, although much slighter than the last-mentioned species: the wings and tail are very long, the latter being five and a half inches in length; its general colour is dark vinaceous, lighter on the breast and belly; collar round the neck black; top of head cinereous; basal half of tail dark brown, outer cinereous. It goes in pairs, and is seen in all parts of the bush, where its well-known soft cooing can nearly always be heard. Like the preceding, it feeds largely on grain.

Turtle Dove (*Peristera chalcospilos*).—The turtle dove is a charming little dove, only seven and a half inches in length. The colour of the male is gray-brown on the back and wings, barred with black on the rump and tail, blotched on the wings with shining green; quill-feathers red, edged with dark brown; under plumage very light vinaceous; top of head ash. Female—upper parts reddish brown, barred with orange; breast the same, but lighter; throat and belly pure white. Its low monotonous "coo" is heard during the heat of the day, when nearly every other bird is silent in the woods. If guided by its notes, it is not easily discovered, as, possessing the power of ventriloquism, it sounds much further off than it really is. The turtle dove is naturally half tame, and even the old birds when caught become soon contented and happy in confinement. A neighbour of ours has a large aviary full of them, which he caught in his garden, where they came attracted by the fruit of his mulberry fences. We have found their nests in mimosa and other low trees, on which they make a small platform of sticks and lay two yellowish white eggs.

Cinnamon Dove (*Peristera larvata*).—The cinnamon dove is another small bush pigeon inhabiting the thicker parts of the woods, and may be constantly seen scratching among the leaves on the ground. The sportsman lying in wait for game is frequently annoyed by the rustling noise they make, mistaking it for the approach of an antelope. Its length is ten and a half inches; upper parts dark brown, with green and coppery reflections; under parts deep brick-red; forehead and throat white; tail tipped with ash.

R. B. & J. D. S. WOODWARD.

(To be continued.)

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*Ornithological Notes from North Lincolnshire.*

By JOHN CORDEAUX, Esq.

(Continued from S. S. 4490).

MAY, JUNE AND JULY, 1875.

*Swift*.—May 5. First appearance; once seen.

*Garden Warbler*.—May 12. First heard.

*Dotterel*.—May 12. A single bird seen; the only one seen by me this season.

*Spotted Flycatcher*.—May 22. First appearance in the garden at Great Cotes.

*House Martin*.—The house martin is more numerous in this district than usual. The sedge warbler and lesser whitethroat exceptionally scarce.

*Gray Plover*.—There was a considerable flock of gray plovers, in full summer plumage, on the flats during the second week in June.

*Dunlin*.—July 12. A flock of about sixty, in summer dress, on the muds; also some curlews and many brownheaded gulls, birds of the year.

*Great Blackbacked Gull*.—July 23. A pair of old birds near the outfall creek. Have not yet observed any young birds of the year. Many mature lesser blackbacked gulls also in the Humber.

*Whimbrel*.—July 23. One seen; many heard passing over on the evening of August 2nd.

*Peewit.* — July 25. Immense flocks of lapwings in the marshes. In one flock there was a single golden plover in summer plumage.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,

August 3, 1875.

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### *The Camel in Australia.*

[The camel, like the horse, cow, sheep, dog, and cat, is I believe nowhere a strictly feral animal, but is always found more or less associated with man as his companion or his servant; it is therefore a task of no inconsiderable interest to watch his enforced migration from country to country in this capacity of an attendant on man, and it is with this object that I have extracted the following facts from Colonel Warburton's narrative of discoveries in Australia. In this narrative the camel is introduced for the first time as a traveller in that New World, in exploring which he has borne so distinguished a part: once introduced he will probably maintain his ground, for like the other animals I have enumerated he seems calculated to hold his own.—*Edward Newman.*]

IN 1866 a gentleman named Stuckey was despatched to India by Mr. Elder for the purpose of purchasing a number of camels and asses. Out of 124 of the former shipped at Kurrachee 121 were landed in South Australia in perfectly good condition; three were lost on the voyage from cold, which produced inflammation of the lungs. They bore the confinement of the passage remarkably well; in fact, from being too liberally supplied with native grass, hay, and of the chaff of rape and of wheat, they became so fat that it became necessary to place them on a shorter scale of diet. Their allowance of water consisted of from two to three gallons each daily. No dressing or bedding was used, simply coir matting nailed upon the deck to prevent their feet from slipping; neither were partitions of any kind necessary, the docile animals lying or standing quietly side by side, fastened only by the head. After landing, the camels continued rapidly to increase, but an epidemic attacked them, a kind of mange, by which disease more than seventy were swept away. The Afghan drivers, some dozen in number, who had accompanied their animals, stated that this complaint was common to the camel in its own country, and that it could be cured by means of oil extracted from certain shrubs. But none of the requisite specific could be found in Australia, and

a grave objection to the importation of camels seemed likely to present itself, from the sudden loss of so large a number at one fell swoop was a serious matter. The luxuriant feed seemed to encourage the disease, and a remedy was looked for in vain. At length it was proposed to apply Stockholm tar externally, and to administer the same ingredient mixed up with oil internally; and the experiment was attended with the happiest effects, the Afghans themselves pronouncing it far superior to the native medicines. It was found that the Australian vegetation was admirably adapted to the camels; in fact, they seemed to thrive better in barren than in rich districts. From the height and long neck of these animals, they are enabled to feed upon the bushes, which form their natural food, at a distance from the ground, far above the reach of horse or bullock, and therefore they can live and flourish where either of the latter would infallibly starve; for though grass is frequently a scarce commodity in the bush, yet the most sterile tracts are commonly clothed with scrubby shrubs. Their digestion being wonderfully strong, no green food comes amiss to them. Salt bush, prickly acacia, sandal wood, mulga, she-oak, all are devoured with apparent relish, and if really hungry they will not flinch from mallee, wattle, gum, or, as far as is yet known, from any tree that grows. In fact, it seems ascertained beyond a doubt that camels will thrive, and perform heavy work, where any other beast of burden would be sure to starve. Another merit possessed by these animals must not be overlooked. From the peculiar construction of the stomach they are able to pass several days without water, and suffer no great inconvenience from the privation. With this characteristic of the camel every child is familiar, but perhaps it is not so generally known that although they all possess this capability, yet training is necessary to develop it fully. A camel not accustomed to abstinence would neglect to husband the store contained within it, and would soon show symptoms of distress; while another, inured to privation, would make a march of several days without suffering.

Mr. Elder imported camels of three different breeds; namely, the fast or Makrana camel, for riding purposes; the hill camel from Scinde, suitable for riding or baggage, being the common camel of Western India; and the hairy camel from Candahar, fine, strong, thick-set animals, eight, nine, and ten feet high, the best kind for heavy loads. The female breeds about four times in five years, and

gives a large quantity of beautiful milk, allowing herself to be handled like a cow. At four years of age the young camel sheds two teeth, and continues this each year, like the sheep, until the seventh, when it is full mouthed, with eight teeth. At ten years it is in its prime; it may then be likened to a four-year-old horse, and it continues in good working condition for thirty years longer. But little trouble is necessary to break camels in. They are handled when quite young, and are capable of bearing a light load at three years old.

Mr. Elder's herd was accompanied by Afghan camel-drivers, who were accustomed to the animals from their boyhood, and hence has arisen an impression that Europeans are unequal to their management. This is entirely a mistake. A colonist can learn to handle camels in a few weeks, and with patience will manage them as well as an Afghan; but he must remember that a drove of camels require widely different treatment from a team of bullocks. The harsh shout and the whip employed in driving the latter must be entirely cast aside, and a system of kindness substituted. The most remarkable feature in the management of camels by the native drivers is the entire absence of punishment. They never beat them, and have impressed their fellow bushmen with a wholesome dread of the dire consequences that would follow the use of the stick. Mr. Stuckey considers them the most docile of animals. The result of several years' experience has shown him that vice occurs less often with camels than with ordinary stock, and that the only reason why Europeans cannot manage them is the want of patience and experience. They are exceedingly sure of foot, and will travel over the most rugged places without inconvenience.

The only difficulty in the way of rearing and breeding camels *ad libitum* is that paddocks are necessary to prevent them wandering in every direction; for, unlike any other stock, they neither herd nor attach themselves to any particular place or part of the country. The native drivers are quite right in warning white men not to irritate the camel by ill usage, for when excited by anger he becomes a terrible antagonist, and his attack is likely enough to end fatally for any man who is the object of it. His strength, long neck, height, weight, and tremendous teeth or tusks make it almost impossible to beat him off single-handed, and he has an ugly habit of dropping on his knees upon the body of a prostrate enemy, which tends very much to reduce the chance of the latter escaping

with life; indeed those most familiar with them say that in an open plain escape from an infuriated camel is impossible.

One great inconvenience in using camels in Australia is to be found in the difficulty of familiarising horses and bullocks to their presence or neighbourhood, and in the terror with which they always inspire these animals at first sight. The colonial horses can hardly be called timid, yet it is stated that, however long a time one of them may have worked or fed beside camels, he is certain to make a bolt if one of the latter fairly faces him, and will often do so if only looked at unexpectedly. This, however, must not be regarded as insurmountable, for in India and Africa they undoubtedly work in company.

Regarding the capability of Mr. Elder's camels for burden, on one occasion a string of more than sixty travelled with an average load of six hundred pounds of wool each, making from seventeen to eighteen miles per diem, and enduring four or five days' thirst easily. A heavy camel carried an Afghan with the mail three hundred and fifty miles in a week; and Mr. Stuckey rode from Puttapa to Umberatana, a distance of eighty miles, in one day, and thinks that four hundred miles might easily be accomplished in five days on a riding camel. The latter travel at from seven to ten miles an hour for many hours together, but during hot weather they do not travel so well in the heat of the day as at night. At Port Augusta, on one occasion, and in consequence of a bet between the men as to what one of the camels—a large one, seven years old—could do, ten bags of flour, or 2000 lbs., were placed upon its back when kneeling, and it rose and carried this without difficulty round the camp. The same animal drew six dead camels nearly a mile over sand, one at a time, with only a rope round its neck, and it has frequently drawn a sixty-gallon bucket from a whip-well. These instances will give some idea of the power of the camel both for burden and draught. The following extract from 'McKinlay's Tracks' will show the reader the opinion formed of the camel on that expedition:—"McKinlay took four camels, in company of a goodly quadrupedal assemblage, consisting besides of twenty-four horses, twelve bullocks, and a hundred sheep. The camel disputes with the horse the palm of usefulness in the Australian expeditions. In powers of endurance the camel seemed quite the equal of his rival, but he was more unruly and troublesome, and very uncompanionable with the other animals, his fellow-

travellers. McKinlay found a decided convenience in the height of his back, as compared with that of the horse, in keeping the supplies of the party out of the water on the occasion of traversing the flooded parts of the march. But both horse and camel alike proved useful in other ways less premeditated. Necessity cures many prejudices, and hunger is a sauce to reconcile us to a very miscellaneous diet. As the stock diminished, and as the appetite increased, even horseflesh proved no unsavoury morsel—lean, tough, and jaded as it too often was. Horse after horse fell under the ‘jerking’ process, consisting of cutting the flesh into long strips to be dried in the sun. The camel, too, took his turn under the knife, and our travellers were even far more anxious to secure an adequate quantity than to differ about the quality of their fare. Only once was the case otherwise, when one of the camels, ‘old and worn out, with sores all over him,’ was doomed to the knife and the jerking. Refractory even in the pot, the tough liver and kidneys defy the teeth of the hungry travellers, and the cook is able to boast for once on the journey that there was superfluity on the board.”

Mr. Elder’s camels have made a number of trips with stores to northern stations, bringing back wool, which is packed in smaller bales than usual for the purpose of easy handling and carriage, and is slung, one bale on each side of a pack-saddle. They were also employed in the construction of the Trans-Continental Telegraph line; and were found most useful in transporting posts, &c. In short, both Mr. Elder and those who have had the care and charge of them since their arrival, have formed a high opinion of their value, of their capacity for work, and of their suitability for many places and purposes where, or for which, cattle and horses could not be used. \* \* \* No sufficient estimate of their powers could be obtained from McKinlay’s journey, for he was hampered by a flock of sheep, and from the nature of the country the camels became foot-sore, and had to be fitted with boots or hides of leather. Still he was favourably impressed with their powers of endurance when fed upon the roughest or poorest scrub, and his horses on several occasions fell away rapidly and alarmingly in condition, whilst the camels caused no anxiety on this account. Colonel Warburton’s expedition may therefore be regarded as the first true trial of the capability of the camel for exploring purposes in Australia.—*Journey across the Western Interior of Australia, by Colonel Peter Egerton Warburton*, p. 118.

**Additions to the Avifauna of the Færoes.**—I observe in the June number of the 'Zoologist' a note from Captain Feilden recording the addition of two species to the Avifauna of the Færoe Islands, *viz.* *Coracias garrula* and *Puffinus fuliginosus*. Amongst some skins received from Herr Müller last autumn, of birds taken in these islands, was one of the sparrowhawk. This, I believe, is not included in Capt. Feilden's Catalogue of the Birds of the Færoe Islands, and if so may be considered another addition. I write from memory only.—*Henry Durnford; Buenos Ayres, July 12, 1875.*

**American Bird-skins.**—Mr. E. A. Mearns, of West Point, Highland Falls, New York, is desirous of obtaining a correspondent in England who will be willing to exchange European, more especially British, bird-skins for American ones.

**Correction of an Error.**—Allow me to point out that it was the whinchat—not the whimbrel—that was recorded in my note of the 25th of May on spring migrants (Zool. S. S. 4537).—*H. Hadfield; High Cliff, Ventnor, Isle of Wight, August 17, 1875.*

**Pied Flycatcher.**—In the 'Zoologist' for June it is erroneously stated that I saw the pied flycatcher "as I was travelling from Bowdon to Bolton Road," whereas I stated that I saw the bird as I was travelling from Barden to Bolton Woods. A few pairs have visited the locality for a great number of years. It is an intensely local species, as I have never seen or heard of a single individual being found in Airedaile, although it is only separated from Wharfdale by a narrow range of hills, and seems equally favourable for its breeding.—*E. Butterfield; Nilsden, Bradford, August 9, 1875.*

**Fieldfares.**—Mr. James Saunders writes to the 'Evening Standard,' from St. Paul's Close, Clapham:—"Perhaps it may interest some of your ornithological readers to know that on the 30th instant, while driving from Bradley towards Preston, Hants, my attention was called to a large flock of fieldfares (apparently in great excitement), and I also observed a few between Bradley and Alton. As these birds seldom arrive in this county before the middle of October, it is remarkable to find them arriving so early; probably they have been driven from their summer haunts in the northern and eastern parts of Europe by an unusual state of the weather in these districts.—'Evening Standard,' August 3, 1875.

[Without doubt I should pronounce this to be a mistake. On the 30th of July there were starlings on the wing in considerable flocks and missel thrushes occasionally, but not fieldfares. Young starlings have puzzled many, even the illustrious Montagu.—*Edward Newman.*]

**Golden Oriole and Hoopoe near Bradford.**—There has been a golden oriole flying about here this month along with some missel thrushes, and my father tells me he has seen a hoopoe two or three times near some old ruins on Mr. Ferrand's estate. I have a garrulous roller which was shot in this part by a gamekeeper, in July, three years ago.—*E. Butterfield.*

**Golden Oriole nesting in Kent.**—In the 'Field' of October 3, 1874, Mr. Harting gave a long account of the nesting of a pair of golden orioles in my park during the previous summer. You will be interested to hear that this year a pair (whether the same or not I cannot say) have again built a nest in my grounds and raised their young. The latter left the nest on the 28th of June. The old male bird was very bright in colour, being of a rich yellow with black wings.—*Bankes Tomlin; Dumpton Park, Thanet.*—'Field,' August 14, 1875.

**Habits of the Chimney Swallow in the United States.**—The following notes on the habits of the chimney swallow will, I think, be of interest to the readers of the 'Zoologist.' The chimney swallows, when performing their migrations, often assemble to the number of several thousands, and take possession of the trunk of some venerable tree which has been hollowed out either by fire or by natural decay. Here they continue to roost for many nights in succession before dispersing to the various parts of the country where they are accustomed to breed. Audubon thus describes a rendezvous of this kind, which was tenanted by about eight thousand or nine thousand swallows at one time:—"Immediately after my arrival at Louisville, in the state of Kentucky, I became acquainted with the late hospitable and amiable Major William Croghan and his family. While talking one day about birds, he asked me if I had seen the trees in which the swallows were supposed to spend the winter, but which they only entered, he said, for the purpose of roosting. Answering in the affirmative, I was informed that on my way back to town there was a tree remarkable on account of the immense numbers that resorted to it, and the place in which it stood was described to me. I found it to be a sycamore, nearly destitute of branches, sixty or seventy feet high, between seven and eight feet in diameter at the base, and about five for the distance of forty feet up, where the stump of a broken hollowed branch, about two feet in diameter, made out from the main stem. This was the place at which the swallows entered. On closely examining the tree I found it hard, but hollow to near the roots. It was now about four o'clock in the afternoon in the month of July. Swallows were flying over Jeffersonville and Louisville and the woods around, but there were none near the tree. I proceeded home, and shortly after returned on foot. The sun was going down behind the Silver Hills; the evening was beautiful; thousands of swallows were flying closely above me; and three or four at a time were pitching into the hole, like bees hurrying into their hive. I remained, my head leaning on the tree, listening to the roaring noise made within by the birds as they settled and arranged themselves until it was quite dark, when I left the place, although I was conscious that many more had to enter. I did not pretend to count them, for their number was too great, and the birds rushed to the entrance so thick as to baffle the attempt. \* \* \* Next morning I was early

to reach the place long before the least appearance of daylight, and placed my head against the tree: all was silent within: I remained in that position probably twenty minutes, when suddenly I thought the great tree was giving way and coming down upon me. Instinctively I sprang from it; but when I looked up to it again, what was my astonishment to see it standing as firm as ever! The swallows were now pouring out in a black continuous stream. I ran back to my post, and listened in amazement to the noise within, which I could compare to nothing else than the sound of a large wheel revolving under a powerful stream. It was yet dusky, so that I could hardly see the hour on my watch; but I estimated the time which they took in getting out at more than thirty minutes. After their departure no noise was heard within, and they dispersed in every direction with the quickness of thought."—*Edward Sweetapple.*

**White Sand Martin and Blackbird.**—I recently caught a milk-white sand martin: it is a young bird, apparently about six weeks old. I have also caught a white blackbird, paradoxical as it may seem, just escaped from the nest.—*E. Butterfield.*

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**Snake-eating Snake.**—I possess the skin of this species (*Ophiophagus elaps*), procured by myself in Province Wellesley, Penang, a few years ago. I have also shown it to Dr. Günther, who found it to measure thirteen feet two inches, and informed me it was a very fine specimen. I believe I may at least call it one of the largest yet procured. There were two of these snakes seen in a field in which the sugar-canes were being cut; one escaped, but the other one raised itself up in a threatening attitude. It was fortunately struck down by a blow from one of the coolies before any mischief could be done. As I gave a reward for all snakes, &c., it was brought to the house, but being away at the time I did not receive it till the following day, when, decomposition having set in, I shall not easily forget the operation of skinning it.—*W. L. Distant; Streatham Cottage, West Dulwich, S.E.*

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**Electric Fish.**—In the 'Lancet' of August 7th there is an account of an "electric fish," lately acquired by the Zoological Society of Regent's Park, and added by them to their living collection. In 1870 I had the pleasure of bringing an electric fish from Old Calabar, where it had been given to me by a trader, who had already had it in captivity on his "hulk" for some two months. I was informed I should have a better chance of getting this one to England than one freshly caught. Some account of this fish may be of interest to your readers. The temperature of the water at Old Calabar was 85° Fahrenheit. I brought away a plentiful supply, which was kept in the engine-room. My aquarium was an ordinary table-basin; the water was

changed every three or four days. The fish having escaped once or twice, I covered the top lightly with a sheet of paper. One very hot night, unable to sleep on account of the great heat, I left my state-room for the main saloon, where the fish was kept in the glass rack: to my surprise, I found it coiled up on, and slightly adherent to, the oilcloth of the table. From the dryness of the table the fish must have escaped some time, and never afterwards became perfectly straight. Its power next day was undiminished, but I had little hope of getting it to England alive; however, I transferred it to a safer vessel, and was rewarded with success. The fish was four inches long, and gave out sufficient shock to prevent its being grasped in the ordinary way. The natives handle them by passing the hand under them, opened flat; in this way there is very little, if any, shock transmitted. A succession of shocks weakens very much the force of the fish. The life of the fish in England is interesting only in showing its hardihood, as it lived alone in an aquarium supplied with pond water at ordinary temperature until November,—about six months altogether,—when I imagine the temperature and the character of the water caused its death. At the time, I remember, Mr. Robertson, of the University Museum, Oxford, telling me that Professor Goodsir had kept two for two years, though in his case (speaking from memory) I believe the water was maintained at a suitable temperature. On the coast the fish is thought to be peculiar to Old Calabar, which is situate over seventy miles from the mouth of the river. I did not hear of it seventy miles up the so-called Sherboro' River. The fish are found of much larger size, and if kept in captivity together the larger invariably kills the smaller. I do not know how this report agrees with Professor Goodsir's pair; they may have been of nearly equal size. They also kill other fish. I have an idea that I some years ago read in an encyclopædia an account of the apparatus by which the shocks are caused, which materially differs from that of the Torpedo or Gymnotus. My specimen was given to Dr. Moxon, of Guy's Hospital, who at the commencement of a much-valued friendship gave me my first taste for Zoology. Since writing the above I have visited the Society's Gardens, and find that their specimen died early last week. It seems to have been much the same size as my own, but was kept, according to the keeper's statement, in water at a temperature of 64° Fahr.—*John Bird; 38, Brook Street, W.—'Field,' August 14, 1875.*

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**Catocala Fraxini at Eastbourne.**—I captured a fine specimen of *Catocala Fraxini* last Monday, opposite the Hospital here; it was at rest on a post, and looked as fresh as if it had just come out of pupa.—*W. E. Parsons; 35, Langney Road, Eastbourne, August 19, 1875.*

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## Books Received.

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*Bibliotheca Ichthyologica et Piscatoria; being a Catalogue of Books and Pamphlets on the Natural History of Fishes and of Cetacea, on Pisciculture, Fisheries, and Legislation respecting Fishes.* Edited by J. D. Mulder Bosgoed. Haerlem: Heretiers Loosjes. 1874. Demy 8vo, 474 pp.

THIS, as stated in the title, is a list of books and tracts about Fishes and Fishing, amounting in number to the extraordinary total of 6436: it has been compiled with the most evident care and exactitude, and therefore is worthy all praise. I cannot better describe it than by copying the very explicit title-page, as I have done above. I have an idea, but I do not feel much disposed to press it, that naturalists will be somewhat disposed to despise the piscatorial authors, and fishermen the Natural History portion; and therefore that both would have preferred a clear line of demarcation between them. It is certain that fishermen are not naturalists, and naturalists are not fishermen, any more than gardeners are entomologists, so that what ought to be the leading qualification for a fisherman is held in very low estimation by the scientific naturalist; thus the first tells you that the "gray drake" or "green drake," as the case may be, is not found only north of the Tweed: the naturalist is well aware that one is a preparatory state of the other. This is not the way to advance either science or "sport," as it is usually called: it is unwise to reject any information that bears even remotely on the subject under consideration.

*Rambles in Search of Shells, Land and Freshwater.* By James Edmund Harting, F.L.S., F.Z.S., &c. Demy 12mo, 108 pp. letterpress and eight coloured litho. plates. Van Voorst, Paternoster Row. 1875.

A NICE little book, reprinted from the 'Field' newspaper; neither too learned nor too popular; neither too imaginative nor too matter-of-fact; neither too deep nor too shallow. The figures of the snail's shells are particularly good: the difference in form between the oviparous and viviparous species of *Paludina* are better given than in any other figures I have ever seen. The only figure that strikes me as erroneous, and that only in having too much colour, is *Helix Pomatia*, in plate ix.: this species, in a state of nature, is nearly white; it is so nearly the colour of chalk that it is most difficult to distinguish it from a lump of chalk. I fancy Mr. Harting may say, "Oh! he is thinking of *dead* shells that have been bleached by exposure on Mickleham Downs." Not so; I allude to living specimens, of which I have seen more than Mr. Harting; because his observations must have been confined to an occasional ramble over the chalk hills, whereas mine are

the result of continuous residence among Pomatias, or "General Oglethorpe's snail," as it is called in Surrey; a legend existing that it was introduced by that General on his return from some successful campaign on the Continent. I may observe that in the frontispiece intituled "Varieties of *Helix nemoralis*, *hortensis* and *hybrida*," it would have been convenient to have referred each figure to one particular species or name.

*Handbook of Devonshire, South Devon, Dartmoor, Torquay, Teignmouth, Dawlish, Newton, Ashburton, Kingsbridge, Moreton, Chagford, with a Sketch of the Natural History.* By Henry S. M. D'Urban. Exeter: Henry Beesley & Son. 1875.

THE sketch of the Natural History is very clever and interesting. Lists are given of the rarer and more interesting plants, Mammals, Birds, Reptiles and Fishes, both marine and freshwater; all of which are prepared with evident care. In the other groups, Insects, Crustacea, Annulata, Echinodermata, Sea Anemones and Corallines so much pains have not been taken; in lieu thereof we are referred to the 'Zoologist,' the 'Transactions of the Devon Association,' and the 'Transactions of the British Association for the Advancement of Science,' which seems rather an unsatisfactory mode of proceeding, for it is the very object of these Handbooks to convey information which may be carried in the hand without reference to more cumbrous sources of information. However, I merely say this as a passing criticism: it is undoubtedly preferable to copy what has the reputation of accuracy than to supply original information subject to the suspicion of inaccuracy. I should, however, have supposed Messrs. Parfitt and D'Urban quite competent to furnish sound information on these groups brought up to the present time.

*A Manual of the Mollusca; being a Treatise on Recent and Fossil Shells.* By S. P. Woodward, A.L.S., F.G.S. Third Edition, with an Appendix on Recent and Fossil Conchological Discoveries. By Ralph Tate, A.L.S., F.G.S. Illustrated by A. W. Waterhouse and Joseph Wilson Lowry. London: Lockwood & Co., 7, Stationers' Hall Court. 1875. Demy 12mo, 542 pp.; Appendix 85 pp.; 23 copper-plates, and very numerous woodcuts.

A NEW Edition of a well-known and thoroughly useful work; I shall perhaps have somewhat more to say about it hereafter: at present I must content myself with giving the explanatory title in full.

EDWARD NEWMAN.

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*Ornithological Notes from Norfolk.*

By H. STEVENSON, Esq., F.L.S.

(Continued from Zool. S. S. 4370.)

## JANUARY, 1875.

THE first week of the New Year commenced with so rapid a thaw that in a few hours the heavy fall of snow on the ground had disappeared, as if by magic, and the temperature became warm and spring-like. Birds were singing as in February, and fieldfares and redwings had all disappeared from the neighbourhood of the city.

*Bittern.*—One shot on Rockland Broad on the 8th. Three of these birds were brought to Norwich about a week before from Acle, Martham and Salthouse.

*Wild-fowl.*—But little fowl remained with us after the intense frost of December. A young goosander was brought to Norwich on the 6th, and a fine male goldeneye was shot on Breydon on the 12th. A Bewick's swan was exhibited in our fish-market about the middle of the month, the only one I had seen or heard of during the winter. With the exception of a few duck and mallard, and some pochards, we had no fowl in our markets throughout February; snipe and woodcocks equally scarce, and though a second winter of frost and snow set in about the 25th and lasted into March, there was a dearth of all kinds of birds worthy of notice.

## MARCH.

*Hobby and Merlin.*—About the middle of the month Mr. E. Bidwell saw in a London market a specimen of each of the above, said to have been killed in Norfolk, and about the same time five common crossbills were sent up from Eriswell, near Brandon.

*Goosander, &c.*—A fine old male and an immature bird were shot on Breydon on the 11th, where a large quantity of fowl had collected, apparently waiting for the second batch of hard weather to "break up" before migrating northwards. A good many woodcocks were seen in West Norfolk early in the month.

*Hen Harrier.*—A female shot somewhere near Cromer was sent up to Norwich on the 27th.

*Black Guillemot.*—An adult male of this species, in change from winter to summer plumage, was washed ashore on Caister beach, near Yarmouth, on the 22nd, during a prevalence of north-easterly gales, other birds—such as razorbills, common guillemots, &c.—being found dead in like manner about the same time. This species is decidedly rare on the Norfolk coast.

*Do Starlings rear more than one Brood in a Year?*—A correspondent drew my attention to this point last year, and though I must own it had never occurred to me before (and particularly from their numbers in autumn) that they differed in this respect from blackbirds and thrushes, still, on enquiry amongst other observers, I cannot ascertain that this species is known to have more than one brood in a year, unless the first is destroyed. No mention, I believe, is made of this point in any work on British Ornithology, and I wish therefore to direct the attention of the readers of the 'Zoologist' to it, for confirmation or otherwise. At Northrepps, near Cromer, this year, as Mr. Gurney informs me, some hundreds of starlings still roosted nightly in the laurels of the "cottage" wood, but after that date their numbers sensibly decreased, most likely from their pairing off and dispersing to breed; but as late as the 10th of June from a hundred to a hundred and fifty of these birds still roosted in the same spot, and apparently had not paired, nor did they intend nesting this year. In other seasons I have remarked several flocks of starlings still feeding in company, whilst others, paired off, were feeding their young; and yet too early in the season for them to be taken for young and old together. Possibly many starlings do not pair till their second year.

#### APRIL.

*Lesser Spotted Woodpecker.*—A bird of this species was observed on the trunk of a tree at Keswick on the 20th; it kept near the top of the tree, and its tapping could be heard at some distance. About the last week in March another was sent up to Norwich to be stuffed, from Tibbenham, in Suffolk. The spring-note of the great spotted woodpecker was first heard at Keswick this year on the 5th of February.

*Heron.*—A pair of herons were observed this spring to return to the same spot in the Keswick Rookery where a nest was built last year, and the young hatched, but unfortunately the attacks of the

rooks this season proved too much for them, and they gave up the attempt.

*Blacktailed Godwit*.—Three specimens, a male and two females, in perfect summer plumage, were shot on Breydon on the 27th. I have never seen this godwit so perfect in this stage of plumage since they ceased to breed in Norfolk, of which native race examples may be seen in old Norfolk collections.

#### MAY.

*Ruff*.—A bird of this species was picked up dead on Breydon on the 4th, in an interesting state of plumage, having the ruff-feathers of the neck only just sprouting, like the fresh quills of a young bird. On the 12th of April I noticed that an old ruff in the Zoological Gardens had perfected that portion of its plumage.

*Shorteared Owl*.—A Norwich birdstuffer received a single specimen as late as the 3rd of May, but I could not ascertain in what part of the county it was killed.

*Puffin*.—On the 3rd a fine adult specimen was picked up nearly dead on Hempstead beach, and another about a fortnight before on some other part of the coast.

*Magpie*.—A pair of these birds, now very scarce in this county, were killed at Tilney All Saints on the 4th.

*Green Woodpecker*.—On the 21st I saw the fresh boring of a green woodpecker in the trunk of a horse-chestnut tree, then in full blossom. This hole was about nine feet from the ground, and cut into the live wood, the aperture itself being as smoothly rounded and bevelled off as if done by a skilled hand with a chisel. The boring had been made both inwards and downwards into solid wood, and the size and quantity of the chips lying under the tree was something marvellous.

*Stilt Plover*.—An adult female of this rare species was shot at Ingham, near Stalham, in this county, on the 20th. The brown tint of the back, as compared with the dark green of the wings, and the dusky feathers of the occiput, indicated the sex, and on dissection I found the ovary contained four eggs, varying in size from a pea to a hemp-seed, and the rest not larger than small millet. The stomach was filled with minute fragments of Coleopterous water insects, with some largish pebbles and gritty matter. Three days after death the legs and feet were reddish

orange—a sort of orange and vermilion blended. The following were the principal measurements:—

Length from tip of bill to end of tail - - - -	14 inches.
Bill, along the upper mandible - - - -	$2\frac{3}{8}$ „
Wing, from carpal joint to end of first quill, the longest	$9\frac{1}{4}$ „
Tarsus - - - - -	$4\frac{6}{8}$ „
Tibia, bare portion - - - - -	$3\frac{4}{8}$ „
Middle toe and claw - - - - -	$1\frac{5}{8}$ „

Irides rich red, almost vermilion. The tongue is short for the length of the bill, and fits, as it were, into a groove, being just one inch and three-eighths short of the tip of the beak. The last specimen procured in Norfolk was also a female shot on Hickling Broad on the 7th of May, 1842, but one which escaped the Yarmouth gunners was seen on the beach on the 19th of May, 1866. I believe a record of a pair of stilt plovers having been seen at Eastbourne, in May of this year, appeared in 'Land and Water.'

*Spotted Redshank.*—About the 15th of May a remarkably fine example of this species was killed at Yarmouth—certainly the darkest-plumaged bird I have seen, killed in this county.

*Summer Migrants.*—For the following dates of arrival of our summer visitants I am chiefly indebted to Mr. J. H. Gurney, of Northrepps, and Mr. R. J. W. Purdy, of Woodgate House, Aylsham:—

Chiffchaff. March 27th, Northrepps.

Wryneck. April 15th, Keswick and Aylsham.

Redstart. April 17th, Keswick.

Swallow. April 19th, Keswick and Aylsham.

Ring Ouzel. April 19th, Northrepps.

Cuckoo. April 20th, Northrepps and Keswick; 21st, Aylsham.

Willow Wren. April 21st, Northrepps.

Blackcap. April 26th, Northrepps.

Sand Martin. April 21st, Aylsham; 28th (large flock), Northrepps.

Great Whitethroat. May 3rd, Northrepps; 8th, Aylsham.

Goatsucker. May 5th, Northrepps; 19th, Aylsham.

Turtle Dove. May 6th, Northrepps; 7th, Aylsham.

Redbacked Shrike. May 10th, Northrepps.

House Martin. May 3rd, Aylsham.

Nightingale. April 20th, Aylsham. Unusually abundant and tuneful round Norwich, though I did not hear them myself till the

30th of April; but I heard one or two singing as late as the first week in June.

Swift. May 12th, Northrepps; 14th, Aylsham; 15th, Norwich.

Rooks. Young out of nest, May 7th, near Norwich.

#### JUNE.

*Lesser Gray Shrike.*—This species, the *Lanius minor* of J. F. Gmelin, is included by Professor Newton in the fourth edition of Yarrell's 'British Birds,' from the occurrence of two specimens—one obtained in the Scilly Isles in November, 1851, in the collection of Mr. Hearle Rodd, of Penzance; the other at Great Yarmouth, in Norfolk, in the spring of 1869, the particulars of which were recorded by the present owner of the specimen, Mr. Murray A. Mathew, and myself in the 'Zoologist' (S. S. 2060 and 2139). From the enquiries I made at that time I felt no hesitation in expressing my belief in the genuineness of Mr. Mathew's bird as having actually occurred in a wild state on the Norfolk coast; and, in confirmation of the same, I have now the satisfaction of recording the occurrence of a second specimen at Yarmouth, which was taken alive in a greenhouse, in the very same locality as the last—the North End Gardens—in the last week in May of this year. On the 2nd of June this bird was brought to me, in the flesh, having died in a cage in which it was confined for a few days, and it had apparently been dead a day or two. It proved, on dissection, to be a male, and, the stomach being perfectly empty, the bird had probably refused all food after it was captured.

*Hoopoe.*—In the first volume of the 'Birds of Norfolk,' I gave a list of all the specimens of this curious bird that had come to my knowledge as killed in Norfolk, or on the immediately adjoining coast of Suffolk, from 1850 to 1865, inclusive, showing the extraordinary regularity of its appearance during the spring months and occasionally also in autumn. As if to contradict my assertion, however, at that time, that it was much too common to warrant its constant persecution and slaughter on our inhospitable coast, I am not aware that a single hoopoe has been seen or killed in Norfolk during the last ten years, and the only record of its appearance in Suffolk that I have met with is a notice in 'Land and Water' for July 17th, that one was obtained this spring at Herringfleet, near Lowestoft. Can any one account for this singular and sudden change in the migratory course of this species?

*Pochards and other Fowl Nesting in Norfolk.*—I have ascertained this summer, having myself seen both its eggs and young, that the pochard still breeds, in a wild state, on one or two of our Norfolk meres, but nowhere in the “Broad” district. Having also, on the same waters, seen three pairs of tufted ducks still located there, of their own accord, in the first week in June, I feel little doubt that this species also breeds with us, though I failed to discover either the nest or young, but the agitation of one hen tufted duck was too demonstrative for one to doubt the existence of nestlings not far off in the thick sedges. I have two notices also of wigeon flushed in different localities in the county in the middle of June; and, on authority which I can scarcely doubt, I learn that a brood of young common scoters were seen on Hickling Broad throughout the summer. Mr. Booth, who was in that neighbourhood in July, tells me that he saw some fourteen or fifteen scoters flying over that Broad towards the end of the month. Garganey have been more than usually plentiful on the Broads, and shovellers in fair proportion, though apparently most partial to our inland meres.

#### JULY.

*Montagu's Harrier.*—An adult female and four young birds of this species, evidently bred in this county, were sent up to Norwich to be stuffed on the 24th of July; the exact locality, for obvious reasons, could not be ascertained.

*Green Sandpiper.*—On the 21st a single bird of this species was flushed from the side of a pond at Northrepps.

*Stilt Plover.*—A second specimen of this rare visitant was killed near Ditchingham, in this county, towards the end of July. The bird was shot by a labouring man as it was feeding in a broad but shallow piece of water on Outney Common, known as the “old river.” It was quite alone, and as, from its plumage and measurements,—so far as I could ascertain them after the bird was mounted,—it is no doubt a male; it may possibly be the mate of the female previously shot at Ingham. The sex was not ascertained by dissection.

Bill, along the upper mandible	- - - -	2 $\frac{6}{8}$ inches.
Carpal joint to end of first quill, the longest	- - - -	9 $\frac{6}{8}$ „
Tarsus	- - - -	5 $\frac{2}{8}$ „
Bare part of tibia	- - - -	3 $\frac{2}{8}$ „
Middle toe and claw	- - - -	1 $\frac{5}{8}$ „

Being badly stuffed in the first instance, the total length of this bird could not be ascertained with any certainty. Mr. J. H. Gurney informs me that in skins of Egyptian stilts brought home by his son three males exceed three females in the length of the tarsus by about one-third of an inch. I have also measured the tarsi of a young female from Mr. Gurney's collection, with the following result:—

Immature female (Egypt)	-	-	-	-	$4\frac{6}{8}$ inches.
Adult female (Ingham, Norfolk)	-	-	-	-	$4\frac{6}{8}$ „
Supposed male (Ditchingham, Norfolk)	-	-	-	-	$5\frac{2}{8}$ „

This, I think, therefore, with the colour of its plumage on the back and wings, may decide the sex of the latter specimen.

*Spotted Redshank*.—A young bird, in its first year's plumage, was shot at Stalham about the second week in August.

*Great Snipe*.—One example of the "double" or "solitary" snipe was killed at Ranworth on the 20th of August, and three more at East Ruston in the first week of September.

HENRY STEVENSON.

Norwich, September 11, 1875.

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*Ornithological Notes from Devonshire, Cornwall, &c.*

By JOHN GATCOMBE, Esq.

(Continued from S. S. 4490).

JUNE, JULY AND AUGUST, 1875.

June 1st. Found several young herring gulls just hatched at Wembury, and was much struck with the wonderful instinct displayed by the little creatures; for so long as an eye was upon them they would remain perfectly motionless, and the colour of their downy plumage so closely resembled that of the surrounding rocks that they were difficult to make out, even with a good glass. On some flat rocks far below, and close to the sea, were about one hundred adult gulls lying basking in the sun, with their heads all turned in the same direction, presenting a very curious effect. I have often wondered how some of the herring gulls can sit on their nests with the rays of a blazing mid-day sun directly upon them; indeed I have watched them for hours, with their mouths wide open, apparently gasping for breath. Among two or three

hundred pairs of breeding gulls, I have almost invariably remarked, a few individuals in immature plumage mated with those in full nuptial dress. There are a great number of rabbits breeding in the cliffs at Wembury; and Mr. Thompson, describing the nesting habits of the gulls on the coast of Ireland, says that they now and then treat themselves to a young one in that locality. The peregrine falcon was not to be seen at Wembury to-day.

June 18th. Garden warblers were very plentiful in Bickleigh Vale this morning; indeed more so than I have known them to be for several years.

June 19th. Again visited Wembury, and found the young gulls much grown, and many more out. Young jackdaws were just able to fly, and were perched about in all directions. Martins, too, nest in large numbers on the face of the cliff. As I did not see the peregrine again to-day, I much fear it has either been killed or has altogether left the neighbourhood.

July 1st. A pair of old and some young redbacked shrikes were brought to one of the Plymouth birdstuffers to-day, and the man who killed them mentioned having found a small bird transfixd by a thorn on one of the bushes off which he shot them: this (to him) extraordinary circumstance he could by no means account for until we explained to him the peculiar habits of the shrikes, which seemed to astonish and interest him greatly.

On the 21st of July I observed some whimbrels, and heard others a few days previously. Small families of the common sandpiper, too, have now arrived on the coast from their breeding-places on our moors.

August 1st. Gull shooting has, I am sorry to say, commenced in Plymouth Sound, which, together with the harbour, is full of young birds. Cormorants have lately visited our estuaries and tidal rivers in small parties, and a few days since I remarked a flock of eleven flying just like a string of wild geese. A young shag was brought to one of our birdstuffers a few days since.

August 27th. Observed many flocks of Ray's wagtail already in our meadows, feeding among the cows. Swifts left us about the middle of the month: these birds and the house martins have been far more plentiful than the common swallow in the neighbourhood of Plymouth.

JOHN GATCOMBE.

8, Lower Durnford Street, Stonehouse, Plymouth.

*On certain Neglected Subjects of Ornithological Investigation.*

By PROFESSOR NEWTON, M.A., F.R.S.

(Read at the Meeting of the British Association at Bristol, 26th August, 1875,  
and contributed by the Author.)

It usually happens when anyone attempts to review the position of the science to which he is attached that he is inclined to believe it to be altogether in a very flourishing state. We do, I admit, occasionally meet with some few men who indulge in a "Jeremiad;" but these are commonly believed to be ill-conditioned persons, or prophets in spirit like Cassandra, only, unlike her, not to be justified by the event, and their predictions and lamentations are most generally treated as they deserve. Thus, say in the matter of zoological nomenclature, when anyone has tried to carry out the rules of that abstruse branch of so-called Science which have received the authority of this Association, and in so doing has to use another name for a common animal than that with which people have grown familiar, somebody, reviewing the matter, is sure to begin wringing his hands and saying that if changes such as this are made the whole Science of Zoology will go to the bad as fast as it can. However, we need not be much disconcerted by such signs of woe, and, at any rate, there will be no occasion for anyone now present to exhibit them in consequence of what I am going to say. I do not intrude myself upon your notice as a foreboder of evil, and I am very hopeful of the future of Ornithology. My only fear (I will not call it a complaint) is, that we seem to have been getting of late rather deeply into certain well-worn ruts, to the abandonment of other tracks upon which we ought equally to travel, and, by your favour, I shall try to show how we may amongst us contrive to cover more ground in our onward progress than we do at present.

It has been my fate recently to have to "take stock" of our ornithological knowledge in a way that I never had occasion to do before. The result has been, on the whole, not otherwise than gratifying. Some branches of the study have, within the last fifteen years, received enormous encouragement from the new views as to Evolution which have been promulgated within that period; but others there are which seem to have remained absolutely in *statu quo ante*. If I am not mistaken, it is a long time since anyone, in

this country at least, has had to make such an extensive research into ornithological literature, and to weigh so carefully the doings of his brother ornithologists, as my engagements have lately imposed upon me; and therefore what I have to say on the subject may not be without novelty, just as the ransacking of old chronicles sometimes has a novel issue. But—and this is more to the purpose—some of the matters I am about to urge on your especial consideration seem to me just such as may be very fittingly brought to the notice of the British Association, with its innumerable members among the votaries of all sciences.

Ornithology has never lacked among its followers those who chiefly apply themselves to the discrimination of species—"species-mongers," as they are irreverently called; and at one time, or perhaps more than once in the history of the Science, their activity was accounted the bane of the study. This, I think, was a short-sighted view; and certainly of late, since the theory of Natural Selection has been propounded, the much-despised "species-mongers" have had good reason to comfort themselves with the assurance that theirs has not been lost labour; and, moreover, they are thereby enabled to go on working with the consciousness that what they are handling has a value far above anything that was suspected of it in pre-Darwinian days. Nothing, then, can be more healthy than the general aspect of this branch of research.

In the same way also the great subject of geographical distribution is being treated with the best possible results. This must always be an interesting topic to ornithologists, because we know that the foundations of the study were first firmly laid by one of our own body,\* though he at that time could form no conception of the grand edifice which the doctrine of descent would erect on that base. Not that the edifice is erected yet, very far from it; the walls are only beginning to make a show above the surface, but its completion is as sure as anything well can be. I may safely leave it in the hands of its able builders.

Then comes a branch of the subject which either has no name at all, or else so many which are misleading, that I hardly know how to call it. Perhaps "Developmental Osteology" is one of the least objectionable, and I will choose that; but a great many men will know better what I mean when I say that it is the department of our Science which in this country Professor Parker has made his

\* Selater, 'Journal of the Linnean Society,' Zoology, ii. p. 130.

own, on which he is still so earnestly engaged, and from which we expect such grand results. If there is any department of the science in which the harvest is plenteous and the reapers but few, it is here. There is room for a score of Professor Parkers; and, though I no more believe that we are likely to have that number than we are to have a score of Shakespeares or a score of Sir Isaac Newtons, I don't see why others (with the training that is now happily becoming so common, not only in our universities, but in our great centres of industry) should not arise to throw that light on, and afford that help to, our systematising labours which we so greatly need. Descriptive anatomy, so long neglected by ornithologists, has now many votaries, and why not this developmental anatomy? A knowledge of descriptive anatomy is in a fair way of being recognised as indispensable to anyone who would intelligently exercise the occupation of an ornithologist; but as I fear developmental anatomy, of birds at least, is left to be prosecuted by but one brain and one pair of hands, I would earnestly recommend any young ornithologist to take up this branch of study. There is not only a hard-working master to assist, but the chance of receiving that master's mantle whenever—and I trust the day is far distant—it shall drop from his shoulders.

Fossil Ornithology has not met with much attention in this country, but that seems chiefly owing to the scarcity with us of ornitholites; but both in France and America it is being well worked, while we need not be ashamed of our share in the investigation when we think of the glorious resuscitation here of the extinct birds of New Zealand. I have just said that the prospects of descriptive anatomy are very fair. I wish I could say as much for the study of those more recondite parts of the birds' external structure, which are so commonly overlooked. There is Pterylography, for instance,—a branch of our science so little thought of in England, that I am afraid to hazard a guess of how few persons there are in this room, or even on this platform, who know the meaning of the word. I can't take up the time of the section by explaining it. I have only to recommend the curious to buy the translation of Nitzsch's standard work on the subject, which has been published by the Ray Society, wherein they will find all the preliminary knowledge they will require to understand it, and I may add nearly all the knowledge we may possess of it.

But where I discover the greatest falling off among my brethren

is in what relates to observational Ornithology—I mean the carrying on of scientific ornithological observations. We have out-of-door ornithologists by dozens, but it seems to me that they go on exactly in the same way as our predecessors used to do, each trying to find out everything for himself instead of taking their ascertained facts as a starting-point, from which they can ascertain new ones; consequently observational Ornithology is almost at a standstill. In nothing is this deplorable want of progress so manifest as in all that relates to the migration of birds—that mysterious subject of which we really know very little more than our forefathers did. Because in days gone by Gilbert White and others of happy memory were careful to record, year after year, the dates of arrival and departure of the swallow, the cuckoo, the woodcock, and all the rest of our common migrants, these excellent contemporaries of ours consider not only that they must needs do the same, but they are moreover content not to do any more. They forget that in White's time the great object was to prove or disprove the existence of migration at all. But nowadays no one in his sober senses doubts the fact of migration—what we want to know are its cause or causes, the manner in which, and the faculty whereby, it is performed. Hundreds of records will not bring us nearer to the solution of any one of these three problems; but even if they did it is clear that they could not have that issue until they were tabulated in some intelligible system, such, for instance, as that which Dr. von Middendorff adopted in his remarkable treatise, 'Die Isepiptesen Russlands.'\* But no one has ever attempted this for the British Islands, and consequently the columns and columns of recorded dates remain perfectly useless. I do not mean to say that the result of Von Middendorff's laborious researches is such as to make one very hopeful of much good following from the digestion and arrangement of similar records in Britain; but, until these have been so treated, it is impossible to say what will come of it. I will only be so bold as to declare what I believe will not come of it, and that is the answer to any one of those questions I but just now mentioned. Again, out-of-door ornithologists of the present day, with some few bright exceptions, neglect the subject of partial migration, the investigation of which is more likely than anything else to reveal the

\* 'Die Isepiptesen Russlands, Grundlagen zu Erforschung der Zugzeiten und Zugrichtungen der Vögel Russlands.' St. Petersburg, 1855.

true cause of the movements of birds; and, so far as I know, no one in this country has ever attempted to trace the routes by which birds migrate—a subject which has of late been very fully and ably treated by a Finnish naturalist, Herr Palmén\*—though I must add that I don't think he has succeeded in proving all he advances. Indeed, how should he? In his opinion, the British Islands form a spot, in or around which converge no less than *four* very important lines of traffic, yet his materials gathered from British sources are scanty in the extreme, and, but for the light reflected on them by continental naturalists, would be utterly useless. Yet, I take it, that the out-of-door ornithologists of England alone in numbers much exceed those of Norway, Sweden, Denmark, Holland and Belgium put together; but since the observers in those countries try to inform themselves as to the points on which information is desirable, the results of these observations immeasurably exceed those of our countrymen in value. It is true that a very considerable step in advance was taken by an excellent out-of-door observer, Mr. Knox,† but that was a good deal more than twenty years ago, and I may say that almost nothing has since been done in this direction by British ornithologists. Many of them, indeed, do not keep up to the ground that Mr. Knox won for them, but (saving that they regard migration as an admitted fact, and I believe that they all do that) they have made no progress since Gilbert White's time. Well, then, the sum of it all is, that we have an enormous quantity of scattered statistics, which might lead to something if any one would be at the trouble of working them up. We suspect that there is much partial migration, but have little definite acquaintance with it. We know from Mr. Knox that there is an essential difference between the manner in which birds arrive on our shores in spring, and quit them towards autumn; but as to the routes which birds take while passing through the country, we are of ourselves entirely ignorant; we can only guess at the cause of migration, and not even guess at the faculty by means of which it is, as a rule, so unerringly performed. This I have left to the last, because it is the most important and mysterious feature of the subject. Dr. von Middendorff has thrown out a hint that birds on their voyages know where the magnetic pole is situated, and steer their course accordingly. Improbable—impossible we

\* 'Om Foglarnes flyttningsvägar.' Helsingfors, 1874.

† 'Ornithological Rambles in Sussex.' Letter vii. London, 1849.

might almost say—as it is that this should be the solution of the mystery, we have really nothing that can be urged against it except its seeming impossibility—no observed facts, which will contravene that or any other hypothesis, however wild. Herr Palmén supposes that “experience” is the key—*i. e.*, that flocks of migrants are always led by birds which have made the journey before. But experience here means a knowledge of landmarks, gained by sight; and how then is this to be of use to birds which travel by night, or cross at one stretch 1000 miles of sea or land? and it is almost undoubted that many birds do so. I cannot conceive a problem more worthy of the attention of ornithologists than this, and I suspect that ornithologists before they solve it will require the aid of those that follow other branches of science.

Then again there is another subject which has been almost entirely forgotten of late years. This is the investigation of what have been called the laws of plumage. Here and there we find some incidental remarks on the moulting of some particular species, but these are often made in support of some preconceived theory, and very frequently in total opposition to what has been actually observed; and nowhere that I know of is there any connected series of observations on the moulting of birds recorded. This is a subject which may perhaps be more profitably investigated by those who have constant access to zoological gardens than by field-naturalists; but still it unquestionably comes into the department of observational Ornithology, and those who keep tame birds may afford efficient aid in this interesting matter.

Again, too, the period of incubation is a subject of which, in all but a very few of our native birds, we are quite ignorant. When we find that two species so very nearly allied as the pheasant and the barndoor-fowl differ by a week in the time each takes to hatch her eggs, without our being able to assign any reason for the difference, it shows that there must be something of importance which has hitherto escaped our scrutiny, and as such it deserves attention. We know not for certain anything at all as to the effects of atmospheric temperature on the development of the chick. Poultry-keepers commonly suppose that, if the weather be warm, their broods will come out some hours—it may be a day or two—sooner than if it be cold; but who has ever instituted any series of experiments that will decide the matter, or determine the conditions of variability, if variability there be? The species of birds which breed in Britain

are considerably under two hundred, but of this comparatively small number are there twenty in which the period of incubation has been at all accurately ascertained? With respect to foreign birds, our ignorance on this point is still more profound.

I might easily extend my remarks to other subjects, but I am unwilling to trespass on your time, and most of you will doubtless think I have already said enough. I trust that I may have thrown out some suggestions that may be useful, and I think no one will dispute the fact that on the heads which I have mentioned we have insufficient information; while, if I am right in deeming them worthy of notice, we ought to bestir ourselves in order that we may become better acquainted with them. I doubt not that some of my brother ornithologists of experience will countenance this view; but their time is already pretty well occupied in the line of study they have each taken up; it is therefore rather to those who have not yet adopted any especial branch of research that I look for aid in the prosecution of these inquiries, which I believe are greatly needed to keep our science in the position we consider it should hold.

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*Researches and Excavations carried on in and near the Moa-bone Point Cave, Sumner Road, in the Year 1872.* Read at a Special Meeting of the Philosophical Institute of Canterbury, New Zealand, on the 15th of September, 1874. By JULIUS HAAST, Ph.D., F.R.S., President.

(Continued from S. S. 4565.)

*Excavations amongst the Sand Hills outside the Cave.*—Before proceeding to general conclusions to be drawn from the results obtained during the excavations in the cave in question, I wish to offer a short description of my researches, of which some date as far back as 1865, made amongst the moa-hunters' and Maori kitchen middens in its immediate neighbourhood. When speaking of the position of the cave, I alluded already to the two lines of boulder deposits running from the western headland in an easterly direction, and gradually diminishing in height and size. Between them and the foot of Banks Peninsula, near the cave, drift sands very soon accumulated, by which a quarter of a mile to the east these boulders were gradually covered.

About two hundred feet east of the cave, Banks Peninsula recedes nearly a quarter of a mile to the south, the low ground being here also covered by drift sands many acres in extent, the highest points thirty feet above high-water mark. On this flat, first the moa-hunters, and afterwards their successors, the shell-fish eaters, had extensive camping grounds. Although in many places the kitchen middens of the older and newer occupants, owing to the changeable nature of the shifting sands, have become mixed up so as in many cases to make it impossible to fix a clear line of demarcation between them; in other instances that peculiarity of the sands has caused that they are very well preserved, and the space between both sets of beds sharply defined. In the first instance we find that the moa-hunters had numerous cooking places amongst these dunes, situated often closely together, which after use became filled up to some extent by the refuse of their feasts, whilst very often a larger heap of broken bones, egg-shells, &c., had been thrown a few feet from the oven—an observation made also at the Rakaia.

A section taken about four chains from the entrance of the cave and one chain north of the Summer Road, proves clearly that there exists a clear line of demarcation between the moa-hunters' and shell-fish eaters' deposits. After examining a bed on the surface, which contained the same species of shells as we obtained from the upper deposits of the cave, I had the sands below them excavated for about two feet, when we came upon the remains of a cooking oven, big boulders, charcoal, and near and above it a distinct layer of kitchen middens, which consisted of moa bones, the larger ones all broken, and some of them calcined; there were also some of smaller birds, of which those of the spotted shag (*Graculus punctatus*) were the most numerous; the crested penguin, the large kiwi and the gray duck being also represented. Besides them bones of the dog,—which appears also to have been a favourite dish of the moa-hunter,—a tympanic bone of a ziphoid whale and some seal bones were obtained.

On the other hand, another section shows convincingly how in many instances the intermixture of the two series of kitchen middens has taken place. It is evident that in that locality—without doubt by rain and wind—a portion of the dunes upon which the refuse-heap of the moa-hunters had been deposited had become partly destroyed, and that the same spot had afterwards

been used as a camping ground by the shell-fish eaters, their kitchen middens having been thrown over the side into a hollow, thus covering, as it were, unconformably the former deposits of human occupancy. In none of the clearly-defined refuse deposits of the moa-hunters were any marine shells found, but in one locality a few pieces of our fresh-water mussel (*Unio Aucklandicus*) were discovered, probably used for domestic purposes; but, as before observed, in many instances the line between both series could not be drawn, and it appeared clear that the sands having been blown away, the kitchen middens of the older and newer occupants became not only intermixed, but even that the same boulders which were collected for their ovens by the moa-hunters might have been used by the shell-fish eating population also.

Owing to the great extent of the area, it was utterly impossible to open up all the ovens occurring there, as this would have been beyond the means at my command; however, sufficient ground was examined to show that the smaller species, *Meionornis didiformis* and *Euryapteryx rheides*, were obtained most frequently, whilst *E. gravis* was also well represented. Of *Meionornis casuarinus*, which was the most numerous species at the Rakaia encampment, only a few bones were observed both in the cave and on the sand-hills, which suggests that in the hunting grounds where the older occupants of that locality obtained their food, this species, so very plentiful near the Rakaia, must have been of rare occurrence. Portions of the shells of several moa-eggs were also collected, of which the greater part of one was lying on the surface close to the Sumner Road. The seal bones found so numerously in the older kitchen middens belong to several species, of which the larger fur seal is best represented, the small fur seal not being so frequent.

*Objects collected in the Kitchen Middens of the Moa Hunters, amongst the Sand Dunes near the Moa-bone Point Cave.*

a. Mammals.

Bones of fur seals ( <i>Arctocephalus cinereus</i> )	-	-	69
„ small fur seal ( <i>Gypsophoca subtropicalis</i> )	-	-	23
„ dog - - - -	-	-	36
„ whale (Ziphioid)	-	-	7

## b. Birds.—1. Extinct.

Bones of Euryapteryx gravis	-	-	-	33
„ Euryapteryx rheides	-	-	-	49
„ Meionornis casuarinus	-	-	-	15
„ Meionornis didiformis	-	-	-	53
Tracheal rings of different species	-	-	-	18
Pieces of egg-shells, trays	-	-	-	2

## 2. Recent.

Bones of spotted shag ( <i>Graculus punctatus</i> )	-	-	28
„ crested penguin ( <i>Eudyptula pachyrhynchus</i> )	-	17	
„ small blue penguin ( <i>Eudyptula undina</i> )	-	13	
„ gray duck ( <i>Anas superciliosa</i> )	-	10	
„ kaka ( <i>Nestor meridionalis</i> )	-	6	
„ large kiwi ( <i>Apteryx australis</i> )	-	3	
„ paradise duck ( <i>Casarca variegata</i> )	-	3	
„ small birds, not yet determined	-	27	

Numerous stone implements were obtained, of which three adzes, in good preservation, were polished, and fragments of eleven others, together with nine pieces of gritty sandstone, used for sharpening or polishing. Of the former, one of the specimens was found immediately above the stones having formed one of the ovens, the others being scattered amongst the kitchen middens; and as this occurrence is a confirmation of the observations made in the cave, there is no doubt that the moa-hunters used both polished and unpolished stone implements. A number of small pieces of obsidian were also found, of which some were probably used as spear-heads. Most of the rude chipped stone implements, like those collected in the cave, had been made from the basaltic rock in the neighbourhood; most of them were simply flakes, without any decided form, but amongst them I observed a few manufactured for spear-heads; others had evidently been chipped to be used as knives or scrapers, the rest being cores only. Flint implements, so well represented at the Rakaia, were also not missing; but with the exception of about a dozen, which were either used as spear-heads or knives, the rest were flakes or cores.

Of the remarkable green silicious deposit (Palla) found in the Gawler's Downs, two small flakes were also amongst the specimens here collected. Two pieces of moa bones, partly worked, were

secured, having doubtless been in preparation for the manufacture of fish-hooks; with them two ornaments made of the humerus of an albatross were found, neatly cut off to a length of about one inch, and resembling the "heitikis" used by the Maoris, in which the feathers of the tui, or small birds are inserted, and suspended from the neck. As already stated, we picked up also some tympanic bones of whales amongst the refuse-heaps, so that it is evident that the use of this bone, for some purpose at present unknown to us, was universal amongst the moa-hunters in this part of the country.

Judging from the great amount of kitchen middens deposited on the very small portion of the dunes examined by me, there is no doubt that the real camping ground of the moa-hunters was outside the cave, and that they used the latter only occasionally for shelter or for their meals, and only in a few instances for cooking purposes, thus proving that a long lapse of time was necessary for the formation of the lower beds alone. On the other hand, the observations I was able to make at the junction of the kitchen middens of the moa-hunters and of the shell-fish eaters, demonstrates that there passed again a considerable time before the latter appeared on the scene; and as there are actually no cooking-ovens in the upper or shell-beds, since deposited in the cave, we can only conclude that the shells were likewise cooked outside, the numerous ash beds, tussocks and fern-stalks, interstratified amongst the shells, suggesting that the later inhabitants lighted their fires only for warmth and light in the cave, and probably slept there.

It appeared to me important to obtain, if possible, some information from the natives whether they had any knowledge or tradition in reference to the remarkable quantity of shell-heaps occurring in the inner or westerly portion of the dunes, which are found at intervals from near the mouth of the Waipara all along the coast as far as the Waitaki, and in which I could never discover any moa bones. I therefore requested my friend, the Rev. J. W. Stack, to inquire from the oldest Maoris of Kaiapoi what they knew about them. He informs me that these natives attribute them generally to the Waitaha, the first immigrants who preceded the Ngatimamoe, who in their turn preceded the Ngatikuri, the present inhabitants. Seeing that these remains are assigned to the remotest period of Maori occupation by the natives themselves, the great division existing between the lower or moa-hunter and the upper

or shell beds, with such a distinct line of demarcation, goes far to prove that an enormous space of time must have elapsed since the *Dinornis* became extinct. Mr. Stack justly points out the importance of this fact in his communications to me, and thus the own traditions of the natives themselves, related in an unbiassed way, are certainly a confirmation of the views I ventured to express first in 1871, in respect to this question, and quite in opposition to the then generally accepted assumptions.

*Conclusion.*—Although when enumerating in the foregoing notes the results obtained during the pursuit of the excavations, I have given already my views, formed from a consideration of the sequence of the beds of human origin, their age and peculiarities, I think it will be useful if I offer, in conclusion, a short *resumé* of the work performed, contemplated as a whole.

The excavations have shown that a nearly level floor of marine sands existed, resting upon the rocky bottom of the cave, these sands being four feet and a half above high-water mark at the entrance of the cave and gradually rising to eight feet near its termination. There is no evidence from which could be concluded when the big block at the entrance of the cave fell down from the roof to narrow the former so considerably, but I have no doubt that this took place before the sea had left the cave entirely, by being shut out by the boulder bank in front of the entrance, the crown of which rises sixteen feet above high-water mark. However, both the boulder bank and this rock at the entrance of the cave prevented the drift sands from entering and filling it, so that when the moa-hunters landed with their canoes in some of the nooks of the rocky shore in the vicinity they found a capital shelter in the cave, whilst the Peninsula, then an island, and the opposite shores of the main island offered them a fine hunting ground.

It appears from the examination of the sea sands that the first visitors of the cave entered it only occasionally, and still more rarely used it as a cooking-place. This might have taken place after the waves of the sea had been shut out from the cave by the formation of the boulder bank in front of it, probably assisted by a rise of the land, but it is possible that at exceptionally high tides the water still entered the cave, as some of the broken moa bones, and of the boulders of which the cooking-ovens in the south-western portion were formed, were imbedded nearly twelve inches deep in the sands, unless we assume that they might have been brought in

to that position by the next inhabitants having walked over them, and thus having trodden them down. The bed of ashes and dirt which here, and in a few other places, underlies the agglomeratic bed, clearly proves that before the last-mentioned deposit was formed fires were lighted occasionally upon the sands. The discovery of drift wood in the cave, often of considerable size, of several seal skeletons, and of a portion of a lower human jaw, is a proof that during the deposition of the sands it was easily accessible to the waves of the sea.

I have already observed that in the marine sands we came across blocks of rock of all sizes, having fallen from the roof, and possessing a more or less rounded shape, such as is observed by scoria, formed in its upper and lower portions during the flow of a large lava stream. When the waves of the sea finally retreated, a great number of these fragments fell for a considerable time from the roof, forming a nearly uniform layer of an average thickness of six inches above the marine sands, and being generally thicker where the cave is highest. This fall was, without doubt, caused by the interior of the cave gradually getting drier. During the whole time of the formation of this remarkable deposit, the cave appears to have been occasionally inhabited, as evinced by the great number of bones and of small quantities of charcoal and ashes enclosed in the bed under consideration. Above this agglomerated bed another remarkable layer had been deposited, generally three to four inches in thickness, mostly consisting of refuse matter from human occupation and of ashes, so that I adopted the name of dirt-bed for the same. It was, especially in some localities,—as, for instance, near the entrance of the cave,—replete with kitchen middens of the moa-hunters. I wish, however, to point out that the fall of the rocks from the roof did not cease during its formation or even afterwards, as all the beds upwards, even those of European origin, have small lumps of such scoria, or even larger blocks, imbedded in them. I believe, therefore, that this dirt-bed was forming during a more regular occupancy of the cave by the moa-hunters; moreover, I think that the connection of the cooking-places and kitchen middens of the moa-hunters outside the cave, amongst the dunes, with the dirt-bed, has been traced satisfactorily in the foregoing pages. But now, as it were at once, the moa-hunters disappear from the scene; but not without affording an insight into their daily life, by leaving us some of their polished and unpolished stone implements,

a few of their smaller tools made of bone, a few personal ornaments, as well as fragments of canoes, whares, and of wooden spears, fire-sticks, and other objects too numerous to mention, but by which the fact is established that they had reached already a certain state of civilisation, which in many respects seems not to have been inferior to that possessed by the Maoris when New Zealand was first visited by Europeans. At the same time, if we consider the position of the kitchen middens on the dunes in the vicinity of the cave, and those which I discovered on the lines of inner dunes in the neighbourhood of Christchurch, even the most ardent defender of the groundless assertions that the moas only became extinct some eighty or one hundred years ago must admit that, at least in this portion of the island, these gigantic birds were exterminated at a period when the physical features in this part of the Canterbury plains near the sea were different from what they are now, that large lagoon-like lakes have since been filled up, and sand dunes of considerable width have been added to those then existing. In one word, those changes during quarternary times have been of such magnitude that it is impossible to estimate, even approximately, the length of time necessary for the achievement of such important alterations, worked out by the action of the sea and the rivers entering it. And as in other portions of this island the deposits in which the kitchen middens of the moa-hunters occur are of similar antiquity, I have no doubt that my views, expressed on this subject some years ago, will gain general acceptance in due time, although I know that erroneous notions to the contrary, when they have once become popular prejudices, are difficult to eradicate—especially when they are supported by one or two scientific men in New Zealand, notwithstanding that their assertions never stood the test of critical examination, and have been refuted over and over again.

That after the deposition of the dirt-bed the cave remained uninhabited for a considerable space of time, is not only proved by the clear line of demarcation between that layer and the shell-bed above it, in which no moa bones were found, but also by the deposit of blown sands about a foot thick at the entrance, and gradually thinning out as it advances towards the interior of the cave. Moreover, if we consider that at least these lower shell beds in the cave are of contemporaneous origin with those which are situated outside on the dunes, to which Maori tradition assigns such a high antiquity,

it is evident—judging from their situation in such a distinct and well-defined position above the bed containing moa bones—that the extinction of our gigantic birds, reasoning from this fact alone, is thrown back for a considerable space of time. Of course it is impossible to calculate this time by even hundreds of years, but as polished stone implements have been found in New Zealand, buried in littoral beds fifteen feet below the surface in undisturbed ground, over which extensive forests are growing, containing trees of enormous size, there is no doubt that the use of polished stone implements dates far back in pre-historic times—I mean to say, to a period to which even the most obscure traditions of the aborigines do not reach.

Moreover, it has been proved by philological researches that the Polynesian race, to which the Maoris belong, is of high antiquity, and that since their location in the Pacific Ocean great physical changes must have taken place in this part of the earth's surface. The similarity of the language spoken on numerous small islands situated at such considerable distances from each other, is no argument against such a hypothesis, because, under certain conditions, even without accidental or intended migrations, languages may remain nearly unchanged for a considerable space of time—I may even venture to say for thousands of years. In support of this view, I wish only to refer here to the great resemblance of the Coptic with the language of the old Egyptians, as revealed to us by the translation of the hieroglyphic inscriptions on the oldest monuments of that wonderful race, still standing proudly on the banks of the Nile.

If we consider for a moment the shell beds in the cave, we are led to the conclusion principally, judging from the absence of cooking-places amongst them, and the numerous thin beds of ashes—without doubt the result of camp-fires—forming distinct lines of demarcation, that the cave was only occasionally inhabited, and that for their formation alone a long period of time has also to be claimed. The upper portion of these shell-beds immediately below the surface deposits of European origin, might be assigned to the forefathers of the Maori tribe inhabiting at present the neighbourhood, as, according to their communications to the Rev. J. W. Stack, the cave had been used as shelter for their fishing parties in former times. And thus another step towards the elucidation of the question *when* the moa became extinct has been made, and

I have no doubt that future researches in similar localities will not only offer a confirmation of the views, as based upon the results of these excavations, but give us still more material towards a better knowledge of the life and manners of the primitive people who exterminated the gigantic birds once inhabiting these islands.

JULIUS HAAST.

**Seal on the Norfolk Coast.**—A fine young specimen of the common seal was captured on the sea-beach at Palling on the 2nd of September, 1875, and brought to me the following day. The dimensions, which I took immediately, were as follows:—

Length, from tip of nose to end of tail	-	-	37 inches.
Head	-	-	9 "
Girth of body just below fore feet	-	-	20½ "
Diameter of eye	-	-	¾ "
Tail, when skinned	-	-	5 "
Width of fore flapper, when fully spread	-	-	5 "
"    hind flapper,                    "	-	-	11 "

Weight, two stone exactly.

—*T. E. Gunn; St. Giles Street, Norwich.*

**Albinism or Leucotism in Birds.**—I have in my collection several specimens which will answer to the above denomination. A few years since, on the 3rd of October, I shot from a flock a white linnet. On examining the bird I found a very large tick, such as are found on sheep, firmly attached to the back of its neck, just above the shoulder. The inside of the skin was of a very pale colour, except at the point where the tick had embedded its head through the skin, where a much darker colour prevailed, radiating to a lighter for some distance. The bird retained the rose-colour at the tips of the breast feathers. Was not the tick—having extracted the colouring matter at its moulting time—the cause of its becoming white? I have also a white knot, which I shot in September, apparently a bird of the year; the beak and legs were of a light colour; eyes not noted. I have a sky lark, stonechat, starling and jackdaw, all similar to the above.—*H. Nicholls; Roseland, Kingsbridge.*

**British Birds' Eggs wanted in Exchange for those of North America.**—Will you have the kindness to place me in communication with a few oologists who desire to exchange eggs of birds of your country for those of North America? I wish to obtain as many of your species as possible, and will help to increase the collection of any gentleman who will favour me by exchanging. Address:—*W. K. Ashmead; Zoological Gardens, Philadelphia, Pennsylvania, United States of America.*

*On the Nesting of Montagu's Harrier in the Isle of Wight.*

By HOWARD SAUNDERS, Esq., F.L.S., F.Z.S., &amp;c.

(Reprinted from the 'Field' of September 18th.)

At the present day, when nearly every acre is either cultivated or preserved for the sake of game, it is but seldom that the naturalist resident in a tolerably populous part of England has an opportunity of observing the habits of any bird of prey excepting the kestrel and sparrowhawk, which, in spite of all the keeper can do, still manage to find shelter in our cliffs and woods. But in the case of a bird whose large size is likely to attract the attention of the watchful game-preserved or of the local birdstuffer, its doom is generally sealed if it ventures to stay more than a few days in the same district; and should a pair have the audacity to remain to breed, their destruction is only a question of time, for nothing is easier than to dispose of any bird of prey when once its nesting-place is discovered. The greed of the collector has already exterminated the honey buzzards (*Pernis apivorus*), which used to arrive towards the end of the spring to breed in the beech woods of the New Forest: it was not enough to take the eggs systematically—for which £5 the pair was frequently paid by collectors of British specimens—but these enthusiastic “patriots” must needs have the birds which laid these literally golden eggs; and, as those who annually farmed the birds required a handsome reward for their loss, as much as £40 has actually been paid for the parent birds shot from the nest with the two eggs, or two young in down—I forget which at the moment. It is true that similar specimens could easily have been obtained from the Continent at less than a tenth of the price; but then they would not have been British! The kite has long been gone; of the buzzard (*Buteo vulgaris*) but a few pairs exist, even in that vast expanse of forest; and if the hen harrier (*Circus cyaneus*) and Montagu's harrier (*C. cineraceus*) still maintain a precarious footing in the country, it is owing to their haunts being on wild open tracts of moor and gorse-covered downs, sparingly frequented even during the day—at which time, moreover, the birds are but little on the move, and thus escape attracting attention. Of these two species Montagu's harrier is undoubtedly the more abundant, or rather I should say the less rare, in the south and south-west of England during the summer months; indeed, its authenticated

breeding range hardly extends beyond the midland districts and Wales, where I have observed it, although it is rarer there than the hen harrier, which still further north replaces it. This year two more nests—one in the New Forest and another in Dorset—have come to my knowledge; in one case at least the birds were ruthlessly destroyed, which was a great pity, as this species does little, if indeed any, harm to game, whilst the services it renders by the destruction of mice, field voles, shrews and lizards are undoubtedly great. Still, frequenting as they do open situations, there is more chance for harriers than for most birds of prey, inasmuch as they are not easy of approach when on the wing, and when on the nest the female sits very close; but once the nest is discovered, either by accident or by watching, the fate of the birds, or at least of the female, is in the hands of the finder. It is of a pair of Montagu's harriers which escaped, at least for a season, the common doom, that I propose to give a short account, although, as will appear in the sequel, circumstances prevented them from carrying off their brood.

As the only value of my observations consists in dates, I will be accurate, and begin at the beginning. It was on the 30th of May, the day after the departure of the Arctic explorers; and as my friend Mr. E. R. Alston, who had come down to Portsmouth to bid them farewell, had never had an opportunity of observing either the ciril bunting or the Dartford warbler—species to be found with tolerable certainty in suitable localities in the Isle of Wight—we started for the gorse-covered downs of the interior, working the sunny slopes and terraces on our upward way. It was not long before we had excellent opportunities of observing the ciril bunting, and hearing its weak and monotonous note; and on arriving at the summit of the downs, we made for the thickest patches of furze, in search of the Dartfords, some of which at that time had just got young, and were consequently less likely to skulk than usual. Suddenly, from the centre of a tolerably thick clump, and within half a dozen paces, rose a bird of a size for which we were totally unprepared, especially at such close quarters, and, soaring round, it displayed the unmistakable form and flight of a harrier. "She's got a nest!" "Never!" exclaimed my friend, hardly daring to believe in such luck; but the barrier of tall gorse was soon passed, and there, in the centre of a clearing of about four feet in diameter, lay three stone-white eggs, reposing in a mere hollow lined with dry grass, with an outside

border of fine heather twigs. The size of the eggs indicated that they belonged to Montagu's rather than to the hen harrier, and our view of the female through our binoculars confirmed this. The ruddy colour of the under parts, and the more distinct barrings of the tail, together with the lightness of form and flight, are very distinctive of *C. cineraceus*, even on the wing. It seemed a great risk to leave anything in the nest, as the chances were that some cowherd would stumble upon it as we had done; but, after consultation, I annexed two eggs, leaving one in the nest by way of dividing the risk and inducing the female to continue laying—four, five, and sometimes six, being the usual complement with the harriers. We then continued our walk, keeping a sharp look-out for the male bird, which in its adult plumage is easily distinguishable from the male of *C. cyaneus* at any reasonable distance. However, he did not show on this occasion, and after another hour's ramble we found that we had been too much demoralised by this large and unexpected game to care for little Dartfords; so, having beaten out two, "just to swear by," we returned to have another look at the nest. Approaching gently, we had an excellent view of the female as she rose. She did not look nearly so large this time when we were prepared for her, and there was little doubt of her being *C. cineraceus*.

On blowing, the two eggs showed no traces of incubation, and it was, therefore, a little surprising that no other egg should be laid from the 30th of May to the 5th of June, on which day the nest contained two eggs, the freshly-laid one being of a clear bluish white, with numerous small marks, apparently blood-stains, and very different in appearance from the egg which had now been laid about a week; the freshness, however, was soon lost. In the interim, and on subsequent occasions, I visited the nest frequently, and had excellent opportunities of observing the male bird, which was an unmistakable Montagu, his dark colour and striated flanks and abdomen being clearly visible with a glass. Early morning and towards evening were the best times for seeing him, but he seemed to frequent a portion of the downs at some distance from the nest; and although, when the female had been disturbed from the nest, and was on the wing for some time, he would generally make his appearance, yet in the course of many hours' watching at different times I never observed him approach the nest, as if to bring food, or taking his turn at incubation. From observations made abroad,

I fancy that few, if any, of the males of the *Circinæ* do so; certainly I never flushed a male Montagu or a male marsh harrier (*C. æruginosus*) from the nest, and I have visited some scores of them. Towards evening the female, when put off the nest, would sometimes, after flying in repeated and gradually widening circles, begin to quarter the ground regularly for food, and I have occasionally seen her settle down for a short time, doubtless to devour whatever had been seized; but until the first egg was hatched she was almost always on the nest at the time of each visit. On leaving the nest she generally circled over the valley, taking wide sweeps over the coombe of the hills, and, after a short disappearance, she would suddenly come over the brow from some unexpected quarter, so that any attempt at concealment, except in a place where one could see nothing oneself, would have been fruitless; but at a distance of some two hundred yards, or rather more, was a convenient line of gorse, whence we could easily observe her with our glasses, and our presence there did not seem to interfere with a return to the nest. When rooks were about, and particularly if they crossed the line of the nest, she displayed great anxiety, and occasionally made a dash at one or two of those nearest, sometimes uttering a cry, something like that of a kestrel, but feebler and more querulous. There was reason for her antagonism, for both rooks and carrion crows (there are plenty of the latter in the Island) showed by their movements that they were perfectly aware of the position of the eggs, and I soon learned to dread them more than any prowling cowherds. It was necessary to run some risk to ascertain when and how many eggs were laid, but my movements were always made as quietly as possible. Several times, by crawling on hands and knees for some distance, and availing myself of a small tunnel in the lower part of the gorse, I got to within a couple of feet of the sitting bird, and on two occasions a small bird, a titlark I think, gave an alarm-note, at which the bird rose: a few seconds more, and I should have actually seen her on the nest, for only a few inches separated me from the clearing. The titlark, or whatever it was, frequented the same bare space, but it certainly had no nest there after the fashion of the Spanish sparrows (*Passer hispaniolensis*), which breed in colonies in the foundations of the nests of eagles and other large raptors. It was very interesting to watch the movements of the harrier when returning to her nest: the wide circles which had enabled her to take in the position of

any large object on the downs gradually narrowed; then quartering would begin again, to be succeeded by more circles, till every one might be expected to be the last. Then, perhaps, she would change her mind, and go off for another series of wide flights; but when the moment came there was no hesitation or hovering, but a sudden closing of the wings as she swept over the spot, and she was down in so stealthy a manner that, if the eye were taken off her for a second, it was impossible to say whether she had settled, or merely gone over the brow of the hill again.

Occasionally I provided her with voles and mice, which were doubtless more appreciated than the attentions she received from various ornithologists—such, in fact, as few harriers have experienced. Besides the finders, there was Mr. E. Hargitt, an able but reticent ornithologist, though better known to the artistic world for his skill with the brush; Capt. H. Hadfield, whose pen has for years past chronicled the fauna of the Isle of Wight in the pages of the 'Zoologist;' and Mr. Harting, well known to the readers of these columns—all taking a lively interest in the accouchement of the British harrier! We were exceptionally fortunate on the occasion of the visit of the latter, as we obtained the best view hitherto afforded of the male bird as well as of the female; but my hope of showing him the young in down was not fulfilled, for the first egg was not hatched until the 21st of June. Of the *exact* day on which this was laid I have, of course, no positive knowledge, as it might have been the last or the first of the original trio; but, allowing for its being laid two days previous to the date of discovery (*viz.* the 30th of May) would give twenty-four days for incubation. The newly-hatched youngster gave me a fright at first, for on penetrating the inclosure there appeared but one egg in the nest, and the shell of the other hanging on a spray of gorse. Nowhere could I see any signs of a chick, and I feared that the crows had been visitors. However, on my return, there was the little fellow, thinly covered with whitish down, seated by the side of the nest. He had probably been under a tuft of brake which was just coming up; for, in my anxiety to avoid leaving a trail, I seldom actually entered the inclosure, but contented myself with looking over the bushes. The next day the bird was quite lively and pecked at my finger, until he found it was not good to eat. He continued to grow rapidly, and by the 29th the down on the upper parts had become a pale fawn-colour, that on the under parts continuing white; eyes dark

brown; feet and cere yellow. On the 2nd of July I took the remaining egg, feeling convinced that it had got a chill; and my friend Hargitt, to whom I gave it, writes to me that this proved to be the case, the embryo being far advanced, but not commensurately with the length of incubation. I had to go abroad on the 3rd, and it is to the kindness of my friends Capt. Hadfield and Mr. Hargitt that I am indebted for the following notes on the gradual growth of the young harrier. By the 5th the quill-feathers had sprouted considerably, and he was thirteen inches from tip to tip; remains of several small birds—amongst them, skylark, titlark, stonechat and yellowhammer—were round the nest; and he seemed to have as much as he could eat. By the 10th the quill-feathers were about four inches and the tail-feathers one inch and a half in length, blackish brown with a rich rufous border, the patch on ear-coverts being nearly the same colour. By the 13th the breast and flanks were covered with chestnut feathers, the scapulars well advanced, and the feathers increasing rapidly on the nape and head, although there was still a considerable amount of down on the latter. At this stage my friends thought it advisable to fasten the young bird by the foot to prevent its escape; but on the 16th Capt. Hadfield, finding that it had freed itself, decided upon taking it, which he did with some little difficulty, as the bird was now active and somewhat fierce.

Capt. Hadfield records that the meat provided for it that night remained untouched, but the next day it took small pieces from the point of a stick, and gradually became tamer day by day with its captor, although always alarmed at strangers. By the 25th of July it had acquired the free use of its wings, flying round the lumber room in which it had been placed in a buoyant manner, and taking great pleasure in its bath, in which it would stand knee-deep, enjoying being sprinkled with water, after which it would spread its wings and bask in the sun. At intervals it was captured, and measurements were taken, the principal result of which is to show that the third primary, which when fully grown is the longest by about three-fourths of an inch, is the latest in attaining that extent. On the 18th of August the wing from flexure measured fourteen inches, the first primary being 2·2 inches shorter than the second; but even on the 28th the full growth was barely reached. It may be as well to quote the relative lengths of the primaries as taken on that date by Capt. Hadfield and myself:—First primary 2·6 inches

shorter than second; second primary  $\cdot 6$  inch shorter than third; third primary  $\cdot 5$  inch longer than fourth; fourth primary a trifle shorter than the second.

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I have already stated that the food of the Montagu's harrier consists principally of mice, voles, small birds, and reptiles, for I observed close to the nest remains of a viper, of which there is no scarcity in some parts of the island. There was nothing to show that they are injurious to game, and I think the few which remain to us might well be spared. However, the British keeper's maxim with regard to a "hawk" is that attributed to Cromwell, "Stone dead hath no fellow," and I fear it is useless to plead for them. Men barely past middle age can remember when the marsh, the hen and the Montagu's harrier all bred in abundance in the fen districts of our island; the drainage and cultivation have been the principal causes of their disappearance, especially as regards the first, and there is nothing to be said on that score. But the other two species equally frequent the drier and wilder portions of our island where cultivation has not yet encroached. If they should prove to increase (a most improbable contingency) to such an extent as to prove detrimental to game or poultry, why, they must die; but for the present do not let this war of extermination be carried out against every bird with a hooked bill and talons, until the day comes when our only knowledge of birds of prey will be derived from stuffed skins from the Continent.

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*Sea Elephants from Kerguelen's Land at Berlin.*

By JOHN WILLIS CLARK, Esq.

(Reprinted from 'Nature' of September 11th).

THE Expedition sent by the German Government to observe the Transit of Venus at Kerguelen's Land has brought home a noble series of specimens.

The most interesting of these are the skins and skeletons of male and female sea elephants (*Cystophora leonina* = *Morunga elephantina*, Gray), adult and young. The largest male is fortunately full grown, though not old, or of so large a size as some of the skulls preserved in other museums would apparently indicate. Still it is a noble specimen, and has been admirably prepared under

the direction of Prof. Peters. The skeleton, when ready, will be mounted and placed by its side in the museum.

Though the existence of this wonderful seal was made known more than a century ago by Pernetty, and subsequently described with more or less graphic detail and exactness by Anson, Cox, Péron, and other antarctic explorers, when it inhabited comparatively accessible localities, there was, so far as I know, no full-grown male specimen in any European museum until this one reached Berlin; and it is only a full-grown male, as is well known, which possesses the remarkable nasal appendage which suggested the name "sea elephant." A young male can hardly be distinguished from a female. Some writers have described the appendage as a sort of trunk, more than a foot long; indeed it is so figured in the plates to Péron's 'Voyage aux Terres Australes;' but Anson, speaking of those he found at the island of Juan Fernandez, compared it to the wattles of a cock. The justice of this comparison is well shown in the Berlin specimen. The appendage is there seen to be a hoodlike dilatation of the nostrils, much wrinkled and puckered, and subdivided by transverse constrictions at intervals of about three inches. It was found impossible to extend it into anything like a trunk, though it was quite soft and flexible when it arrived, having been sent home in salt. In fact, it closely resembles the "hood" of the bladder-nosed seal (*Cystophora cristata*), but is smaller in proportion to the size of the animal, and different in shape. Péron, who described it as a trunk, was so good an observer, and generally so trustworthy, that I can hardly believe that he invented the resemblance; indeed he called the animal "Phoque à trompe," in consequence of its possession of it. Might not the individuals that he described, which inhabited Bass's Straits, have belonged to a different species? The upper lip is about two inches high, above which the crest, or hood, rises four inches more, and is prolonged backwards over quite half the head, in the integuments of which it is gradually absorbed. The animal measures fourteen feet six inches in length from tip of nose to tip of tail, and sixteen feet three and a half inches to the extremity of the hind flippers, taking the measurements along the curve of the back. The total length along the ground is fourteen feet one inch. The girth is eleven feet, measured just behind the hands. The vast bulk of the fore part of the body; the diminutive hands, armed with long nails; the short, widely-spreading feet; the thick, clumsy neck,

and the huge head crowned with its strange appendage, recall exactly the male animal depicted in the plate of "A Sea Lion and Lioness from Juan Fernandez" in Anson's 'Voyage,' over which it has been the fashion to make merry for the best part of a century; and vindicate the accuracy of that intrepid seaman. The skeleton was in process of maceration, with the exception of the head: this measured rather less than two feet in length. The sutures are all open, and the teeth unworn. It was impossible to examine the other bones with any accuracy, but the epiphyses appeared to be united.

Besides the skin and skeleton of the full-grown male, there are the following:—

- Young male, eight days old, skin stuffed, skeleton complete.
- „ older, skin without skeleton.
- Female, full-grown, skin stuffed, skeleton complete.
- „ „ skull and imperfect skeleton.
- „ „ three skins.

The Expedition has also brought home a male and female *Otaria* of singular beauty, quite new to Science, for which Prof. Peters has proposed the name *Arctophoca Gazella*, from the name of the vessel on board of which the voyage was made. There are also a skin and skeleton of the leopard seal (*Stenorhynchus leptonyx*), and many skeletons of albatross, penguin, petrel, and sheathbill. Last, but not least, there is a skeleton of a *Delphinus* from the African coast, which will probably turn out to be either new or one of those that have hitherto been known from skulls alone brought home by sailors.

While one cannot give too much praise to the skill and energy of the naturalist who has done so much in so short a time, and in so difficult a locality for work as the inhospitable shores of Kerguelen's Land, or to the University of Berlin for the instructions given before the Expedition started, it is not in human nature to forget that the Germans are not the only nation who sent an Expedition to that spot. Moreover, although these specimens could not be better placed than as part of the extensive collection now forming at Berlin, which, so long as Prof. Peters has charge of it, will be at all times accessible to visitors, yet Berlin is distant a journey of a day and a half from London, and in consequence the majority of Englishmen must remain as heretofore in ignorance

of what a sea elephant is like. Why will our countrymen obstinately refuse to take the trifling amount of trouble necessary for the killing, the preparation, and the packing of this and allied marine mammals? Again, why, when an Expedition is about to start, do not those in authority give stringent orders for the capture of the mammals that are known to exist in a given locality? Even from a commercial point of view the acquisition of these animals might be advantageously undertaken; as a brisk competition would ensue among all the museums for their possession, if perfect skeletons, in good condition, were to be brought home.

JOHN WILLIS CLARK.

PS.—As a rule, when “sea lion” is spoken of in the old voyages to the Pacific and South Atlantic, what we term “sea elephant” is meant—a true seal; while our sea lion—an Otaria—is spoken of as a “seal.”—*J. W. C.*

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**Rat killing its own Species.**—I witnessed the following occurrence on the 4th of August:—I was in the garden, and hearing a rustling noise in the hedge, four yards from where I stood, I looked in that direction. A large full-grown rat (*Mus decumanus*) was pursuing a small one. The chase was but brief from the time I first perceived it, for by means of a dexterous turn round a root the old rat overhauled the young one, and, greatly to my surprise, seized it. The young one squealed lustily. At first I imagined it might be play, or perhaps the young one had proceeded beyond bounds, and was seized by its parent, after the manner of cats or ferrets, to bring it back; but no—the young one was soon on its back kicking, and as the supposed parent was about to remove it I made a noise. The old rat ran away, leaving behind the lifeless body of a young male rat, which weighed about one ounce and three-quarters, and was eight inches and three-quarters in length. Its neck was pierced through, and blood oozed from both ears. The whole performance did not last twelve seconds. On the 21st of January, 1867, I saw a rat hopping along with another almost as large as itself in its mouth. On advancing the dead rat was dropped, and I found it to be weakly-looking and thin, but warm. The snow was in large drifts at the time, and we had severe weather. Rats caught in snap-traps by the legs will be set upon by others, killed and demolished, all but the skin; and one of the first things a sensible rat does when caught by one of its legs is to twist and gnaw off its own limb to get free. This I have watched them do over and over again. In 1867 the rat may have been driven to kill its fellow through hunger, but what the object of to-day's performance

was I cannot conceive, because there is plenty of food, and the victim was a strong and healthy young rat, sufficiently old to be independent of its parents. When a boy nearly all my pocket-money was earned by rat-catching, my father allowing me one penny per head,—so I soon became expert at the trade, and well acquainted with the habits of the rat; but I never observed an incident similar to that above described, and am quite at a loss to account for it. Can any readers of the 'Zoologist'?—*Richard M. Barrington; Fassaroe, Bray, County Wicklow, September 21, 1875.*

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**Migration of Waders.**—On Saturday, the 29th of August, large flocks of gray plovers, godwits, sandpipers and redshanks passed over Ramsgate Harbour, passing at intervals of a few minutes. The shrill cry of these birds could be heard all night, beginning about 9 P.M. A few greenshanks also passed over, but I did not hear a single curlew. The birds appeared to be flying low, not more than from fifty to a hundred yards high, judging from the whizz of their wings. At first I thought that the presence of these birds was due to the mud-flats at Pegwell Bay being covered by the tide: on visiting the mud-flats at low-water next day very few waders were to be seen, and no birds were heard to cross the harbour on Sunday night. A correspondent of the 'Times,' writing from Tunbridge, states that he heard the birds, which he calls "whistlers," pass overhead about 8 P.M. Another correspondent from Folkestone writes that large flocks of sandpipers passed over the town at intervals between 8 P.M. on Saturday and 4 A.M. on Sunday, August 30th. The birds were also heard at Dover.—*A. H. Smee; September 1, 1875.*

**Hobby feeding on Bats.**—At p. 4538 Mr. Sclater asks if the hobby has been known to feed on bats. If he will turn back to p. 4292 he will find that a hobby was killed in Norfolk which contained two bats.—*J. H. Gurney, jun.; Northrepps.*

**Montagu's Harrier breeding in Norfolk.**—An old female of Montagu's harrier and five young birds, which had apparently left the nest but a few days, were captured on the Upton Marshes near Acle, on the 30th of July last, and sent me for preservation.—*T. E. Gunn; August, 1875.*

**Further Note on the Young of the Snowy Owl hatched in Confinement.**—I am desirous of adding a few further particulars to my note on this subject in the 'Zoologist' (S. S. 4573). The youngest of the four owlets unfortunately died on the 14th of July, and having been left in the aviary for a short time after its death was discovered, its head was torn off (presumably by one of the parent birds), which spoiled it as a specimen. On the 15th of July the oldest of the three survivors began to change in colour, the white down assuming a dark lead-coloured tint, and by the 19th

of July the three young birds had all changed from white to dark lead-colour, remaining clothed in down of the latter hue, slightly tipped with the remains of the previous white dress on the extreme ends of some of the down plumelets. On the 23rd of July the young owls were observed to be beginning to show their quill- and tail-feathers. On the 4th of August the youngest of the three died, and was liberally presented by Mr. Fountaine to the Norwich Museum. This death reduced the brood to the two first-hatched young ones, which when I last heard of them were thriving prosperously. I paid them a visit on the 12th of August, when I found them well feathered on the back, wings and tail, but the other parts still covered with lead-coloured down.—*J. H. Gurney; Northrepps, September 21, 1875.*

**Hoopoe near Norwich.**—April 22nd. I saw a fine female hoopoe that had been killed at Horstead on this date.—*T. E. Gunn.*

**Psittacula passerina.**—In Messrs. Woodward's notes on South-African Zoology (Zool. S. S. 4549) *Psittacula passerina* is included, and is noted as being "common in the neighbourhood of Durban." Surely some mistake must have been made in the determination of this bird, as *Psittacula passerina*, as far as is yet known, is confined entirely to South America. Indeed the fact of the "crown of the head being blue" prescribes it from being the species mentioned. Nor does this description tally with *Agapornis roseicollis*, a common South-African parrot of somewhat the same facies as *P. passerina*, in which the head is rosy red, so that it becomes desirable to know more of the species mentioned in these "Notes," which will I suspect prove to be one not hitherto recorded from that part of Africa,\* or even a new species. *Agapornis pullaria*, *A. Swinderniana* and *A. cana* are all excluded, their heads not having blue on the crown, and it can hardly be a *Pœocephalus*, if much smaller than *P. Levillantii*.—*W. A. Forbes; West Wickham, Kent, September 17, 1875.*

**Wall Creeper at Stratton Hall.**—On looking through the mass of correspondence of Gilbert White, I have found the following passage in a letter from Mr. Marsham, F.R.S., of Stratton Hall, to Gilbert White, dated October 30, 1792:—"My man has just now shot me a bird which was flying about my house. I am confident I have never seen its likeness before. But on application to Willughby, I conclude it is the wall creeper or spider-catcher. I find he had not seen it in England. It is very beautifully coloured, though the chief is cinereous; but the shades of red on the wings, and the large spots of white and yellow on the quill-feathers are uncommonly pleasing." I presume that Marsham was right in his conjectures as to the species, and as I have never met with any mention of its occurrence in England, we may give him the credit of discovering the *Tichodroma*

\* *Agapornis taranta* is recorded from Abyssinia, but, not knowing the bird, I cannot say whether or no it agrees with the above description.—*W. A. F.*

phœnicoptera as a British visitant. Mr. Marsham was an acute and accurate observer of Nature, and the author of some interesting papers on trees in the 'Philosophical Transactions.'—*Thomas Bell; The Wakes, Selborne, Alton, Hants, September 24, 1875.*

**Gigantic Puffballs pecked by Rooks.**—I saw on the 22nd of August what appeared to me such a very unusually large growth of Fungi, that I am prompted to send you this note. In a hayfield bordering the Dene is a well-defined "fairy-ring," about twenty yards in diameter, and on this ring grew nineteen of the largest "puffballs" I ever saw. By bringing home one of medium size I found the average size would be—circumference three feet two inches; height seven inches and a half; weight five pounds. I know nothing of their scientific name. They were snow-white; skin as smooth as polished marble; the colour of the interior being, next the skin, nearly white, gradually deepening into brimstone-yellow, towards the root. I found several of them were pierced, evidently by the rooks, which frequent the field; but they do not seem to eat them, for their mandibles appear to have been driven in apart, as if to bite, and straight withdrawn, leaving two bayonet-shaped holes about an inch deep.—*John Sclater; Castle Eden, Durham, August 24, 1875.*

[I am only acquainted with one species of puffball so large as that mentioned by Mr. Sclater, and that has been found measuring forty-nine inches in circumference: the name is *Lycoperdon giganteum*. It is new to me that this species, like *Agaricus orcadus*, should cause fairy-rings or be associated with fairy-rings; and I also suppose it new that they should form any part of the rook's very miscellaneous and diversified bill of fare.—*Edward Newman.*]

**Albino Swallow near Norwich.**—On the 11th of September a pure white swallow, minus the head, was brought to me. The bird had lost its head in the following peculiar manner:—On the previous day a gentleman saw a hawk chasing a small bird, which it eventually captured; he succeeded in frightening the hawk, causing it to drop its prey, which was found to be still alive, whilst its head was, no doubt, undergoing the process of digestion. The swallow is a young bird, and of a pure white, with faint water-markings indicating the spots of its tail-feathers.—*T. E. Gunn.*

**Malformation in the Head of a Chick.**—A few weeks since I examined a rather remarkable chick, which had no upper mandible to its bill, but the lower one was quite perfect, and in the centre of the forehead there was a rather large single eye. In every other respect the little thing was just as it should be.—*John Gatcombe; 8, Lower Durnford Street, Stonehouse, Plymouth, September 6, 1875.*

**Solitary Snipe in Norfolk.**—On the 3rd of September a solitary snipe was killed at East Ruston, and on the 7th two other fine specimens, killed in the same locality, were sent to me for preservation; both these latter

were males, in very plump condition, and exceedingly fat. I have just heard of a fourth from the same neighbourhood.—*T. E. Gunn.*

**Spotted Redshank in Norfolk.**—A fine adult male of the spotted redshank, in full summer dress, was killed at Yarmouth on May 14th, 1875. It measured in total length thirteen inches, and twenty-one inches and a half in extent of wings to extreme tip of each; wing from carpal joint to tip, six inches and five-eighths; bill two inches and one-eighth; irides dark brown, nearly black; bill black, deep red at base of lower mandible; legs, toes and claws dusky black. The legs and toes of immature birds in autumn and of adult birds in winter are of a reddish orange colour. On the 16th of August last I received a dusky specimen (immature) killed near Stalham: this on dissection proved to be a male. In referring to my note-book for 1872 I find the measurements above quoted very nearly correspond with the dimensions of a male killed on the 8th of November in that year, and which also passed into my hands. The weight of this latter bird, being in good condition at the time, was six ounces.—*T. E. Gunn.*

**Descent of the young Guillemot from its Cliff.**—At p. 4342 Mr. Boyes moots the question of the method which the guillemot employs to convey its young from the lofty cliffs where it has been hatched to the water. The woodcock's mode of moving its young was for a long time an open point, but that is now settled; but I believe the above is an interesting and perplexing question to many people. When I was at Flamborough I made particular inquiries on this *questio verata*, and Mr. T. Mackin, a birdstuffer, told me that he had sometimes been on the rocks at the base of the cliffs, and had actually seen and shot parent guillemots with nestlings in their beaks, and he showed me two of the nestlings which he had obtained. However, to give both sides of the argument, I must mention that Mr. Bailey and a man named Lumley, who is a crag-climber of thirty years' experience, assured me that they had also witnessed the descent, and it was not performed in that way, but that the young were always carried on the back. Both statements are probably true; but if, as your correspondent says, they come down almost perpendicularly, the former would seem the casier. It not unfrequently happens that they are knocked off the cliffs, when, if the tide happens to be out, the infant guillemots come to an untimely end; and I dare say also that, when it is high, scores drop into the water; others, again, may wait until their pinions develope a little. As soon as the old ones get them down to the water they, to use the fishermen's expression, "squeal out." The authorities of Flamborough tell me the descent takes place about the latter part of July.—*J. H. Gurney, jun.; Northrepps Hall.*

**Herring Gulls carrying off wounded Dunlins.**—I do not fancy that the circumstance of a large gull carrying off wounded dunlins (*Zool. S. S. 3828*) is very unusual. Such a thing has occurred to me when I have been out

shooting, and I have several times heard gunners and other persons who make a practice of shooting on the extensive muds of our coast say that it is a very common sequel to a successful shot into a large flock of dunlins to have a large herring gull or an old blackback pounce upon the wounded ones.—*J. H. Gurney, jun.*

**Pomatorhine Skuas and Black Guillemots at Flamborough.**—In the 'Zoologist' (S. S. 4382) my father mentions a remarkable *lusus* of the razorbill, which he obtained from Flamborough, from Mr. Bailey, for my collection. At the same time there were sent him several pomatorhine and Richardson's skuas and a young black guillemot, which he did not record, with the information that they had all been shot about the same time, *viz.*, at the end of January; but, as the skuas were skinned, some of them may have been shot before that. The black guillemot is marked "November." It appears to be barely full-grown. I have compared it with five other immature examples, but there is only one as young in its plumage, which was shot at Blakeney, near here. They both have the under parts profusely mottled with black, and the amount of white on the wing is small, particularly in the Blakeney bird, in which it consists in two narrow bars only. Two of the pomatorhines are adult, with straw neck fairly marked and under parts white, but the central tail-feathers are not fully developed. In one they are not flush with the other rectrices, being a good quarter of an inch shorter, yet the singular and unnatural twist in them is fully shown. One day when I was out shooting at Blakeney, the boatman pointed out to me an oyster-boat in the channel. He said he was on board when a pomatorhine skua struck against the mast and dropped down disabled. He ran into the cabin for his gun, got the disabled bird, and also shot another which was keeping company with it. He sold them to Mr. Alcock, of that place, at whose house I saw them. The pomatorhine was a splendid adult: the other bird which the boatman had killed was a Buffon's skua, also adult. I should like to have purchased the pair, as they are decidedly rare with us in that plumage. Torbay seems to be the best locality, where several observers state that they are to be obtained from time to time. Prof. Newton mentions on one occasion seeing as many as ninety there ('Ibis,' 1863, p. 190), but does not say whether any of them were adult. With reference to the razorbill my father states that no similar variety had ever come under his notice. There was, however, in my collection already a specimen which resembles it in the washed-out paleness of the darker part of its plumage. It is in summer plumage. The fore neck is of a light reddish brown. The beak and feet, however, appear to have been the natural colour in life. The curious thing about the Flamborough bird was that they were a perfect yellow.—*Id.*

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**Large Surmullet off Penzance.**—Please record the occurrence in my nets this morning of a surmullet which measured over all one foot three inches; from eye to fork eleven inches and three-quarters; its greatest girth just at the origin of the pectoral was eight inches and three-quarters; and it weighed two pounds four and a half ounces. It is the largest surmullet I ever saw.—*Thomas Cornish; Penzance, September 11, 1875.*

**Physalia pelagica on the Coast of Devon.**—Several specimens of that curious and interesting marine animal, *Physalia pelagica*, or “Portuguese man-of-war,” have been taken near Plymouth within the past month. They were very active and lively, and one lived for some days in a large bucket of salt water.—*John Gatcombe; September 6, 1875.*

**Deiopeia pulchella at Eastbourne.**—On Saturday, the 18th of September, while capturing *Colias Hyale* and *C. Edusa*, I was fortunate enough to take two specimens of *Deiopeia pulchella*. They were flying leisurely in a clover-field, taking short flights from one flower to another. One of them appears to be a variety, the fore wings being nearly destitute of the crimson spots, and is a much larger specimen than the other.—*W. E. Parsons; 35, Langney Road, Eastbourne, September 20, 1875.*

[Other captures of *D. pulchella* are recorded in the ‘Entomologist’ for October.—*E. Newman.*]

### Books Received.

*Statistique Scientifique d'Eure et Loire—Lépidoptères.* Par M. Achille Guenée. Chartres: Petret-Garnier, Place des Halles, 16 & 17. 1875.

ALTHOUGH this volume is issued in 1875 the preface bears date 1866, and the title-page 1867. This range of eight years will afford not only most agreeable occupation but intense satisfaction to those who adopt, or rather affect to adopt, the laws of nomenclature enjoined by the British Association for the Advancement of Science. I assume the author's object in giving the earlier dates is to carry back the priority law as far as possible; the bookseller's object in giving the later date is to make the work appear as recent as possible. However, one beneficial result will certainly accrue; it will unmistakably show the futility of this priority law, and that the sooner it is abrogated the better for Science. The work is a list—descriptive as far as the larvæ are concerned—of the Macro-Lepidoptera of Chateaudun and its vicinity. It will be found extremely useful as showing the nature of localities as well as the actual habitats where each species has been found. It also sets forth M. Guenée's views of classification and nomenclature prior to 1866, and in these respects is also interesting.—EDWARD NEWMAN.

*Ornithological Notes from North Lincolnshire.*

By JOHN CORDEAUX, Esq.

(Continued from S. S. 4618.)

## AUGUST AND SEPTEMBER, 1875.

*Godwit*.—August 4th. Wind north on this and previous days; temperature low, with much rain. First autumnal appearance of godwit on the mud flats.

*Whimbrel*.—Many whimbrel heard passing over on their southern migration during the first ten days in the month.

*Gray Plover*.—August 19th. Some young birds of the year on the Humber foreshore.

*Knot*.—August 19th. First young knot seen.

*Reeve*.—September 1st. I got two reeves to-day, shot in the marshes: there were two others in the same pasture, feeding with starlings, and rising at the same time. Also a ruff and seven reeves on my marsh pastures during a greater part of the month: they occasionally cross the embankment and feed on the muds in company with other waders.

*Whitethroat and Sedge Warbler*.—September 4th. I saw several about this date in the marsh, evidently on their move south. None seen after this date.

*Pied Flycatcher*.—September 16th. Wind north-east on this and previous day, blowing rather stiffly. Saw a pied flycatcher this morning, a bird of the year, hawking at the marsh farmstead from the stack-yard rails. The bird was extremely lively, constantly capturing small flies and insects from the projecting straws along the stack sides; sometimes fluttering to the ground to seize some small object among the grass blades—exactly as I have seen them capturing insects on the wooded sides of the Cumberland fells.

*Snow Bunting*.—September 16th. One seen, apparently an old male. The earliest occurrence previously recorded by me in this district was at Spurn on the 11th of October. I saw this bird nearly every day for some time in the same locality; it was always extremely tame, permitting an approach within a few feet. No more seen till to-day (October 5th), when I found a young bird of the year, in company with a rock pipit, on our Humber embankment.

*Sanderling and Turnstone.*—September 15th. Considerable numbers, especially of the former, on the sandy flats near the mouth of the Humber.

*Knot.*—September 23rd. When on the sea coast near Tetney to-day, with Mr. Howard Saunders, we watched the knot passing from the Lincolnshire to the Yorkshire coast. I mention these more particularly as they were seen under very favourable and picturesque circumstances. The sky was overshadowed with dark and heavy cumuli, excepting in the east, where, beyond the endless flat, a ragged, ever-changing line of breakers was backed by an arc of light—bright, very clear, almost colourless, hard and cold as a wintry sky; such a sky as we see before heavy rains: across this drift flocks of knot in *echelon*, long extended. There was one, a dark nucleus of birds, with a most fan-like expansion, like the tail of a comet; another was a big ball, ever contracting and expanding, sometimes drawn out like a huge caterpillar or wreath of smoke. These birds, advancing in single rank in an immense extended wavering line, massed and crowded rather densely at certain points, and much resembling some huge cable *tied in knots*. I hope none of my readers will give me credit for perpetrating a pun, although a coast gunner did once try and explain to me the origin of King Canute's bird by the habit they have of flying in knots and bunches. Our gunners invariably, when speaking of these birds collectively, use the term "a bunch of knot"—never a flock.

*Hooded Crow.*—September 24th. Wind east and north-east on previous day, blowing very hard on night of 23rd. Hooded crow first seen. Also, at the same time, large flocks of larks came in: first flight of snipe.

*Waders.*—Night of 26th and morning of 27th; heavy gale from the south-west. This I noticed was followed by a great accession of waders on the flats—knot, dunlin, redshank, gray plover, &c.: these only remained, however, for a few days.

*Yellowhammer and Greenfinch.*—October 2nd; wind north-west, cold and gloomy, with squalls of rain. Flocks of yellowhammers have come in; also about this time—probably on night of 3rd (as I did not observe any on the stubbles before morning of 4th)—considerable numbers of old greenfinches.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,  
October 6, 1875.

*Ornithological Notes from Somersetshire during September, 1875.*  
By JOHN GATCOMBE, Esq.

September 1st. Remarked numerous flocks of tits, consisting of several species, the longtailed included, flitting among the branches, and following the line of the extensive rows of withy trees bordering the dykes or ditches on the moors in the neighbourhood of Bridgwater, and in some instances they were accompanied by the willow wren and chiffchaff. The direction of their flight seemed to tend generally towards the west. I was also much interested in watching the plan adopted by a marsh tit when feeding on the heads of a rather large species of thistle which abounds in this locality. It would fly down from a tree or bush directly on the head of a plant, and, pulling out a mouthful of the down, return to the tree, extract and devour the seeds, then down again for a fresh supply, constantly repeating the operation until satisfied.

6th. Vast numbers of swallows and martins have now begun to congregate, as if preparing for migration. Among one large flight I observed a beautiful light buff variety, which was continually harassed by members of its own species. For some days past I have also remarked swallows and martins perfectly swarming on a large walnut tree, although its branches were densely covered with leaves and fruit; indeed, in this locality, they seem to prefer alighting on walnut trees to anything else, even the roof of a house.

7th. This morning I caught sight of a green sandpiper flying along the banks of the river Parret.

17th. When driving in the vicinity of Bridgwater, I witnessed a rather extraordinary sight: the day was particularly warm and bright, and the air seemed to teem with starlings, hovering, wheeling and hawking after insects just like swallows. They were in thousands, and extended for miles, not in flocks, but each bird making a circuit of its own. I have often seen starlings fly in a similar manner, but never in such countless numbers.

25th. This afternoon I observed a beautiful buff or nearly white variety of the missel thrush among a flock of twelve or fourteen others of the natural colour, but which, like the poor swallow before mentioned, was constantly persecuted and worried by its companions. Strange to say, only a day or two before, when visiting the fine collection of varieties belonging to Mr. Marshall,

of Taunton, he called my attention to a lovely *pure* white variety of this species, which I think had red eyes; but notwithstanding the purity of its colour, the spots on the breast could be distinctly traced, in certain lights having almost the appearance of being indented.

29th. Saw the buff missel thrush again, and this time it must needs be chased and persecuted by a rascally crow. It was extremely wild, but could be detected at an amazing distance either flying or on the ground, and was also a most conspicuous object when perched on a tree or bush.

30th. A pair of martins are still feeding their young in the nest under the eaves of a cottage close by our house. The barn owl and green woodpecker seem to be very plentiful in this neighbourhood.

JOHN GATCOMBE.

Moorland, near Bridgwater.

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*Additional Particulars of Montagu's Harrier Breeding in the Isle of Wight.* By Captain HENRY HADFIELD.

I HAVE been informed by Mr. Howard Saunders, the well-known ornithologist, that in strolling on the Downs, on the 30th of May, on the look-out for a nest of the Dartford warbler,—a pretty common species with us,—he put up a harrier from a clump of furze, and the nest was found containing three eggs, which he has reason to believe are those of Montagu's harrier, and the sight of the parent bird strengthens him in that opinion. I did not see the nest till some days later, when I accompanied him and Mr. E. Hargitt, a zealous naturalist, to the spot. Cautiously approaching we got within a few yards before the bird rose, with rapid and buoyant flight, sweeping round at no great distance, and keeping within view for some minutes, but not returning to the nest during the hour or more we were on the watch.

On the 19th of June the harrier was found on the nest, though two of the three eggs had been taken (the fourth egg was not laid till the 5th of June). When the nest was again inspected there was but one egg, the shell of the other being picked up alongside, leading Mr. Saunders to believe it had been preyed on; but on a subsequent visit a nestling was found with the other egg, having

previously lain *perdu*. Thinking that the remaining egg might not be hatched, it was taken on the 2nd of July, and contained a chick well advanced. Probably the warmth of the downy nestling would have kept the egg at the natural temperature during the absence of the parent bird.

[ I was unable to revisit the nest until the 3rd of July: on seeing me the nestling stood on the defensive, open-mouthed and with upraised wings; one could hardly imagine so young a bird having so formidable an appearance. The nest, which measures one foot in diameter, is composed of stalks of fern and heath, lined with grass, and is placed on the ground, surrounded by high gorse, except at one point, where the bushes being detached and intermixed with fern, the nestling can be seen; and a striking sight it is, the white down contrasting strongly with the green gorse and purple heather. The bill is black; cere, tarsus and toes of a uniform pale greenish yellow; eyes of a dark hazel-brown. It is sturdy-looking and well fed, four birds having been found in the nest, the greater part of two eaten, the third headless, the fourth a nestling stonechat or whinchat—all well nigh stripped of feathers before being brought to the nest.

July 6th. The young bird again looked at. It is much grown, but little changed in plumage, though the shafts of the primary quills are much grown; the bare patch at the lore is darker, and yellow at gape more apparent. One small bird, denuded of feathers and headless, was found in the nest: it appears that the lark, titlark, yellowhammer and stonechat are some of the species preyed on.

On the 10th the nestling was found to be much grown and surprisingly changed in plumage, there being now large patches of reddish brown on the shoulders and small ones on the head, back and wings. The quills, which are now two inches in length, are black, tipped with rufous, and there are a few reddish brown feathers cropping out on the neck and breast. Got a distant view of one of the old birds.

13th. Fearing the young bird might escape, it was tethered. It grows fast, and the wings look out of all proportion. The plumage is becoming dark, the brown patches now extending from shoulder to shoulder; the dark spots on the back are united, and those on the under parts are spreading; the tail-coverts are of a light yellowish white, with dark shafts. In this

transition state the bird has a motley piebald appearance. Nothing was seen of either of the parent harriers.

16th. Though a wet, foggy and boisterous day, I went on the Downs, fearing that my captive might have got entangled, but it was found in the nest, though it had managed to get its foot out of the noose. Being fearful of losing it, it was taken, and in its struggles the downy feathers were scattered in all directions, the bespeckled bird looking as if it had been in a snow-storm.

On the morning of the 17th it was found sitting where it had been placed overnight, but the meat provided had not been touched, and it was late in the day before it could be induced to swallow a few pieces of meat held out on a stick, being very savage, striking violently with both wings and beak.

20th. Most of the down has been shed, except on the head, and the whole of the under parts are now of a uniform rust-brown; feathers with dark shafts; chin grayish white; forehead and crown dark; hair brown, streaked and spotted with black; there is a large patch of light yellowish brown on the occiput; nape and back of a dark glossy brown, margined with light yellowish brown; wing-coverts the same, but more broadly tipped with the lighter colour, which forms a conspicuous patch on the wing when closed. Bordering the eye there is a narrow line of minute black feathers, and over and beneath it a band of velvety feathers of a light buff colour; from ear-coverts to gape a large semicircular patch of dark chestnut-brown. The dusky loreal space has a greenish yellow tinge, and there is a black patch near the eye, and numerous erect black bristles about the nostrils. Primary quills slightly, secondaries broadly, tipped with light reddish brown; fourth quill the longest. It is fond of basking in the sun with outstretched wings and expanded tail, and is constantly preening and adjusting the feathers, passing the quills through the bill. It will touch no food that is tainted, nor does it feed readily on meat; but a sparrow which was given it was fixed firmly in the claws and torn to shreds.

23rd. It is now about fifteen inches and a half in length; the fourth quill is still the longest, the wings reaching to within an inch and a quarter of the end of the tail, and it now makes use of them, and would doubtless have been on the wing ere this if at liberty.

25th. It is now five weeks old, and there is little down remaining.

What is remarkable in the plumage is the light yellow patch at the back of the head; if wanting in the young of the hen harriers (?) the species should be readily distinguished. It is playful, whirling round with open wings, then stopping to peck at one's toes or pick up a straw, peering at one the while. It lies on its side basking in the sun, scratches its head, yawns, and closes its eyes at times.

27th. Is now strong on the wing, flying round the room in the most buoyant manner. Having caught it, I examined the quills and took some measurements:—Length from forehead to end of tail sixteen inches and a half; tail seven inches and a quarter, of a dull black, with four irregular bars of reddish brown, deepest on the exterior quills, all tipped with rufous but the two centre ones, which are gray at the points, and faintly barred with the same; all are of a yellowish white beneath on the inner webs; the centre feathers are a quarter of an inch and the exterior ones half an inch shorter than the rest. The primaries have also four bars of rufous, and are slightly tipped with the same; the fourth quill still exceeds the third by a quarter of an inch, and is three-quarters of an inch longer than the fifth; the first a quarter of an inch shorter than the second; the first four are sinuate on the inner web, and taper, the third and fourth being the most pointed.

August 4th. Though tame with me, it will allow no one else to approach, flying from them in the greatest state of alarm. The dark loreal space is much encroached on by plumelets and bristles, and between the eye and nasal sinus there is a black patch.

11th. I find that the third primary now exceeds the fourth. Having been left longer than usual without food, it came to me with open wings, emitting a shrill plaintive note, and, clawing the meat from my hand, began to feed voraciously.

16th. The third primary is three-quarters of an inch longer than the rest, and the closed wing reaches to within half an inch of the end of the tail. Underneath the primaries are transversely barred with black and white, giving the wing a checkered appearance; inner secondaries grayish and yellowish white on the inner webs, and both primaries and secondaries have a rufous tinge. Tarsus concealed for a third of its length; it has become rough and scaly, and the scutella on toes much enlarged. It drinks freely, often standing knee-deep in water, with which it

likes to be sprinkled, stretching out its wings, and seemingly enjoying it.

18th. Having again examined the wings, I find that the first primary is two inches and two-tenths shorter than the second; the second seven-tenths of an inch shorter than the third; the third eight-tenths of an inch longer than the fourth; fourth quill one inch and seven-tenths longer than fifth. The sinuations of the four first primaries are somewhat deeper and more extended. The wings from flexure measure fourteen inches; tarsus two inches four-tenths.

This bird's wings reaching to within half an inch of the end of the tail, and the *third* primary being the longest (to say nothing of the light patch at the nape) there can be no doubt as to its being—what my friend Mr. Saunders took it for—Montagu's harrier. Temminck remarks that its nest is placed “dans les bois voisin des marais et des lacs couverts de joncs.” Morris, seemingly referring to this, says, “The nest is composed of grass, sedge, rushes and flags;” but this nest is not—as I have already stated, and the site chosen is about the highest and driest in the island—some seven or eight hundred feet above the sea level. Temminck points out what I have referred to as remarkable in this young bird; he says, “Sur l'occiput un grand space d'un roux jaunâtre.”

HENRY HADFIELD.

Ventnor, Isle of Wight.

P.S.—Mr. Sclater having said that the young harrier would be acceptable, it was forwarded to the Zoological Gardens on the 2nd of September.—*H. H.*; October 6, 1875.

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*Birds and Specimens noticed during a Short Stay in France, Switzerland and Italy.* By Captain HENRY HADFIELD.

THOUGH birds are as plentiful in Brittany as in any part of England with which I am acquainted, they appear to be scarce in the eastern and south-eastern districts of France, there being little cover in the plains south of Dijon, except vineyards; however, a few rooks, magpies, and other common species were seen.

At Geneva vast numbers of martins were observed on the 3rd of September, congregating about the eaves of some lofty houses

bordering the lake. Saw at M. Jacques Revon's, the well-known naturalist, some splendidly prepared specimens, particularly of eagles and other Raptores; and there is a whitewinged black tern so life-like that it appears to be taking wing. The studio of this gentleman is very attractive, and the walls are hung with exquisitely finished paintings by his sister; one—a portrait of Pius IX., lately sat for—is a perfect masterpiece. I also visited the Museum, but no catalogue could be obtained, the objects having but recently been brought together. Though the collection of birds is not a large one, they are, for the most part, well set up and in a good state of preservation. The *Euphema taitianus*, which is about five inches in length, is a remarkable looking parrakeet, being almost black, except on the cheeks and neck, which are white; the bill is reddish yellow; tarsus very short. The *Strigops Habroptilus* is a very large parrot, some eighteen inches in length; the general plumage green, dark on the back, but light beneath, tinged with yellow; tail faintly barred with black. There are interesting specimens of the nutcracker in immature plumage; the adult in its summer dress and in winter plumage; and of the tarsus and another bone of the solitaire.

The Museum of Berne was closed, and this quaint notice posted on the door, "It is vain ringing; it will not be answered." Why it was closed I could not ascertain.

I was more fortunate at Milan, where an hour or two was passed in the Museum, and the following are a few of the birds and eggs noticed:—*Athene noctua*, both male and female, and nest, with five roundish eggs, slightly speckled with grayish brown; the adult birds reddish brown, streaked with white on the back; the young gray and white. Oriole and nest, with four young of a grayish brown colour, tinged with yellow. Nest of *Ortyx californica*, with sixteen white eggs, spotted and blotched with reddish brown. *Sylvia cinerea*; nest in the midst of corn, containing five grayish white eggs. *Calamoherpe arundinacea*; nest with four young, attached to reeds about eighteen inches from the ground. Eggs of *Pernis apivorus*, white, blotched all over with greenish brown. *Falco cenchris*; eggs yellowish white, blotched and speckled with reddish brown. *Falco Tinnunculus*; two eggs of a yellowish white ground colour, wellnigh covered with dark brown markings. *Falco Milvus*; eggs white, with a

few brown spots. *Falco tinnunculoides*; eggs greenish brown, thickly clouded with dark brown. *Accipiter Nisus*; eggs white, blotched with dark brown. *Syrmium aluco*; eggs white and very round.

I was told by two fellow-travellers returned from the Tyrolese Alps that at the height of seven or eight thousand feet they had met with some handsome reddish birds of the size of our bullfinch, which, from the description, could be no other than the scarlet bullfinch.

Between Berne and Interlaken a black bird was seen in the distance, which I took for a daw or a chough; but on the following day, in ascending the pass, some three thousand feet high, I saw two black woodpeckers, one within shot—so there could be little doubt that the bird referred to was of this species. After crossing the Col de Grinnig, I saw in the village of Lungern, at a road-side inn, a small flock of house sparrows. Dr. Bree says that the Italian or Cisalpine sparrow is a mere variety, but it appeared to me to be a distinct species, differing from our house sparrow both in shape and colour. On the Righi, at an elevation of about six thousand feet, I saw a few titlarks and white wagtails. When crossing the St. Gothard some small larks (probably the short-toed) were seen. Hawks were occasionally observed, but none identified. A bird with very dark plumage, possibly the black kite, was observed hovering around a lofty precipice.

In Italy but few birds were seen; for instance, between Milan and Verona, a magpie or two, a marsh or reed warbler, wagtails, and house sparrows of course. Venice swarms with pigeons; never did I see such swarms, except in North America: in strolling through the Piazza St. Marco they were met with in countless numbers, flying to and from the Ducal Palace and Church of St. Mark, where they have their nests, and where the young are seen on the ledges, and ensconced in the niches and amid the fretted and elaborate sculptured work. So tame are these pigeons that they flock by hundreds to be fed in this public square. I saw children feeding them, the pigeons running round and about them in the most fearless manner. There are a few variegated in plumage, but they are mostly of the blue rock-dove type. Though protected, and never shot or molested, the young must be taken, or there would be a plague of pigeons. On the 10th of September some hundreds of swallows and martins were seen at

sunset crowding about the Ducal Palace. With the exception of a few gulls or terns, seen in the distance, no other birds were observed.

When crossing from Dieppe to Newhaven, on the 15th of September, several swallows were met with in direct flight for the Continent; wind north-east.

HENRY HADFIELD.

Sept. 30, 1875.

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*The Gigantic Land Tortoises of the Mascarene and Galapagos Islands.\** By DR. ALBERT GÜNTHER.

[In connection with this paper I would recommend the reader to visit the fine collection of living tortoises now exhibiting in the Zoological Gardens, Regent's Park.—*E. Newman.*]

IT has been mentioned in a preceding paper that the principal mark of distinction is in the form of the skull, some species having a depressed skull with the surface flat above, whilst in others it is much higher and convex above. Hand-in-hand with this difference in the skull goes another in the pelvis; the flat-headed tortoises having a broad, horizontally-dilated bridge between the obturator foramina, whilst in the round-headed form the bridge is vertically compressed. Such a distinction might have been expected between the Galapagos tortoises on the one hand, and the Mascarene races on the other; but what justly excites our surprise is that the Galapagos tortoises and the extinct forms of the Mascarenes belong to the same (the flat-headed) type, and that, therefore, a much greater affinity exists between them than between the extinct and living races of the Mascarenes.

I.—FLAT-HEADED TYPE.

A. The Galapagos tortoises may be recognized by the invariable absence of a nuchal plate, by the convergence of the posterior margins of the two gular plates, which never form a straight line, by the black colour of the shell, by a large scute of the inner side

\* The substance of this article is contained in a paper read by the author before the Royal Society in June, 1847, and will appear in the forthcoming volume of the 'Philosophical Transactions,' and to which I must refer for the scientific portion and other details. Some facts, which have come to my knowledge subsequently to the reading of this paper, are added.—*A. G.* [The present reprint is from the columns of 'Nature.'—*E. N.*]

of the elbow, by the double alveolar ridge of their jaws. Among the carapaces which I have examined I can distinguish five forms; of the first four severally, two are more nearly related to each other than to the other pair, the fifth being intermediate between these two pairs. The degree of distinctness and affinity which obtains in the carapaces is expressed clearly and in exactly the same manner in the skulls, as will be seen from the following characteristics:—

1. In the first species (*Testudo elephantopus* of Harlan) the shell is broad and depressed, with the upper anterior profile sub-horizontal in the male, and with corrugated but not deeply sculptured plates. Sternum truncated behind. The snout is very short. Skull with an immensely developed and raised occipital crest, with a sharp outer pterygoid edge, and a deep recess in front of the occipital condyle. The skeleton of a fully adult male example and one of an immature female are in the Oxford Museum and the collection of the Royal College of Surgeons. Young individuals are by no means scarce in collections. Either this species or the next appears to have inhabited James' Island.

2. *Testudo nigrita* has likewise a broad shell, which, however, is considerably higher than in the former species; the anterior profile in the male is declivous, and the plates are deeply sculptured. Sternum with a triangular excision behind. The snout is longer, and the occipital crest low; but the outer pterygoid edge is equally sharp, and the recess in front of the occipital condyle equally deep as in *T. elephantopus*. The principal specimens examined by myself of this species, are one 41 inches long, in the British Museum—the type of the specimen (described and named by Dumeril and Borbron) in the collection of the Royal College of Surgeons; and the large skull in the British Museum, figured by Dr. Gray under the name of *Testudo planiceps*.

3. Porter's account of the race inhabiting Charles Island is sufficiently characteristic to enable us to recognize it in an adult specimen, the shell of which is elongate, compressed into the form of a Spanish saddle, and of a dull colour without any polish. The sternum is truncated behind. Skull with the outer pterygoid edge flattened, with the tympanic cavity much produced backwards, and without recess in front of the occipital condyle. The only adult example which I have examined is 33 inches long, and belongs to the Museum of Science and Arts, Edinburgh. It was

lent to me by the Director, Mr. T. C. Archer, who most kindly allowed the skull and limb-bones to be extracted, which could be effected without the least injury to the outward appearance of the specimen. This species I have named *Testudo ephippium*.

4. The smallest of the Galapagos tortoises is one for which I have proposed the name *Testudo microphyes*, the carapace of a fully adult male being only  $22\frac{1}{2}$  inches long. We may presume that this specimen, for an examination of which I am indebted to the Museum Committee of the Royal Institution of Liverpool, is a representative of the race from Hood's Island, Porter having expressly stated that the tortoises of that island are small, and similar to those of Charles Island. Indeed, the shell is elongate, as in *T. ephippium*, but the anterior profile is declivous. The skull has the characteristics of a young skull of one of its more gigantic congeners; the outer pterygoid edge is flat, and there is no recess in front of the occipital condyle, as in the species from Charles Island.

5. In the last species (*Testudo vicina*) the skull is depressed as in the first, with the upper exterior profile sub-horizontal in the male, and with the lateral anterior margins reverted so as to approach the peculiar shape of *T. ephippium*. The concentric sculpture of the plates is distinct. Sternum of quite a peculiar shape, much constricted and produced in front, and expanded and excised behind. The skull is extremely similar to that of *T. ephippium*. Unfortunately nothing is known of the history of the adult male example which formerly was in the possession of Prof. Huxley, and ceded by him to the collection of the British Museum.

B. *The Mauritian Tortoises*.—It would be a matter of considerable interest to ascertain whether the tortoises of Mauritius lacked the nuchal plate, like the Galapagos races, to which in other respects they are so closely related. The only carapace which I have seen is deprived of the epidermoid scutes, and, besides, so much injured in the nuchal region that it is impossible to determine the absence or presence of a nuchal plate. But the Mauritian tortoises were characterised by a peculiarity hitherto unknown among recent land tortoises, *viz.*, by a treble serrated dental ridge along the lower jaw.

The examination of a considerable number of bones, part of which were obtained during the search for dodo bones, and are

now in the British Museum, whilst for others, from the district of Flacq, I am indebted to M. Bouton, has convinced me of a multiplicity of species in this island. The majority of the bones were found near Mahe'bourg, in a ravine of no great depth or steepness, which apparently once conveyed to the sea the drainings of a considerable extent of circumjacent land, but which has been stopped to seaward, most likely for ages, by an accumulation of land. The outlet from this ravine having thus been stopped, a bog was formed called "La Mare aux Songes," with an alluvial deposit varying in depth from three to twelve feet. The tortoise bones occur at a depth of three or four feet, imbedded in a black vegetable mould; lighter coloured specimens are from the vicinity of the springs. (Zool. Trans. vi. p. 51). Among these bones I have distinguished four species, the more important characteristics of which may be particularized as follows:—

1. *Testudo triserrata*.—Promixal half of the scapula trihedral, with the anterior side convex; acromium trihedral, straight. Coracoid anchylosed to scapula at an early stage of growth. Humerus moderately slender, with the shaft flattened, and a deep hollow between the head and tuberosities. Shaft of the ulna narrow, much twisted. Ossa ilei short and broad; transverse and vertical diameters of pelvis subequal; front part of pubic bones abruptly bent downwards. Femur stout, with much dilated condyles; a deep and broad cavity between the head and trochanters.

2. *Testudo inepta*.—Proximal half of the scapula trihedral, with the anterior side concave; acromium compressed, with the end curved. Coracoid never anchylosed to the scapula. Humerus moderately slender, with the upper half of the shaft trihedral, and without hollow behind the head. Shaft of the ulna broad, not much twisted. Ossa ilei narrow and long; vertical diameter of pelvis much exceeding in length the horizontal; front part of pubic bones gently declivous. Femur stout, with much dilated condyles, and with a deep and narrow cavity between the head and trochanters.

3. *Testudo leptocnemis*.—Sparsely represented, with a scapulary similar to that of *T. triserrata*; ossa ilei of moderate length and width; femur slender, with moderately dilated condyles, and with a deep and broad cavity between the head and trochanters.

4. *Testudo Boutonii*.—Known from scapulary and humerus only. The former bone is strongly compressed; acromium with the end

curved. Coracoid not anchyclosed to scapula. Humerus very stout, with the shaft trihedral in its whole length, and without hollow behind the head.

C. *The Rodriguez Tortoise*.—The remains from Rodriguez which I have hitherto examined, and for which I am indebted to M. Bouton and to the trustees of the Glasgow Museum, consist of fragments of the cranium, perfect cervical vertebræ, pelvis, and the larger leg bones. They indicate one of the best marked species of the entire group, with a double alveolar ridge, and with the neck and limbs of greater length and slenderness than in any other species. The neural arch of the sixth nuchal vertebra is perforated by a large ovate foramen on each side close to the anterior apophyses. These perforations were closed by membrane in the living animal, and evidently caused by the pressure of the apophyses of the preceding vertebra, the animals having had the habit of bringing the neck in a vertical position, so that these two vertebræ were standing nearly at a right angle. Some of the bones are exceedingly large, larger than any of those from the Mauritius, and must have belonged to individuals of the size of our large living male from Aldabra.

## II.—ROUND-HEADED TYPE: *T. indica*:

To this type belong all the specimens with a nuchal plate which have been deposited in British collections within the last forty years, or which elsewhere have been described or figured; and more especially the tortoises from Aldabra. Whether all these specimens have come from this small group is impossible to say, as we know very little or nothing of their history. Although I have succeeded in bringing together a considerable number of specimens, from which it would appear that also in this much smaller division several races could be distinguished, I think it best to defer, for the present, the detailed publication of the results of my examination, which ere long may be supplemented or modified by important accessions.

In conclusion we may ask whether the facts which I have endeavoured to place before the readers of 'Nature' are more readily explained with the aid of the doctrine of a common or manifold origin of animal forms.

The naturalists who, with Darwin, maintain a common origin for

allied species, however distant in their habitats, will account for the occurrence of the tortoises in the Galapagos and Mascarenes in the same way as, for instance, for the distribution of the tapirs, *viz.*, by the hypothesis of changes of the surface of the globe. Taking into consideration other parts of the Faunæ, they would have to assume, in this case, a former continuity of land (probably varying in extent and interrupted at various periods) between the Mascarenes and Africa, between Africa and South America, and finally between South America and the Galapagos. Indeed, the terrestrial and freshwater Faunæ of Tropical America and Africa offer so many points of intimate relationship as to support very strongly such a theory. The tortoises, then, would be assumed to have been spread over the whole of this large area, without being able to survive long the arrival of man or large carnivorous mammals. The former, especially before he had provided himself with missile weapons, would have eagerly sought for them, as they were the easiest of his captures yielding a most plentiful supply of food; consequently they were exterminated on the continents, only some remnants being saved by having retired into places which by submergence became separated from the mainland before their enemies followed them. With this hypothesis we should be obliged to contend for this animal type an age extending over enormous periods of time, of which the period required for the loss of power of flight in the dodo or solitaire is but a fraction.

To my mind the advocacy of an independent origin of the same animal type, however highly organized, in different localities, seems equally justified. It has been urged that closely similar structures of the animal organism have been developed without generic relationship; so, also, the same complex organic compound, as sugar, is produced normally by the plant and abnormally by the human organism. Without overstepping too far the limits of probability, we may assume that some land tortoises were carried by stream and current from the American Continent to the Galapagos, and that others from Madagascar or Africa, found in a similar manner a new home in the Mascarene Islands. These tortoises may originally have differed from each other, like the *Testudo tabulata*, *radiata*, *sulcata*, of our days, possibly not exceeding these species in size, but being placed under the same external physical conditions evidently most favourable for their further development, they assumed in course of time the same gigantic proportions and

other peculiarities, the modifications in their structure which we observe now being partly genitive, partly adaptive.

Thus this curious phenomenon in the geographical distribution of animals can be explained by either of those two theories, and does not appear to me to strengthen the position of one more than that of the other. The multiplicity of the races which I have pointed out above I need not further discuss. As regards the Galapagos, this fact is quite in accordance with what has been long recognized in the distribution of the birds of the same archipelago, and the co-existence of several races in Mauritius is perfectly analogous to the variety of species of *Dinornis* in New Zealand.

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*Descriptive List of the Cassowaries.*

By P. L. SCLATER, Esq.

[Mr. Sclater, the talented Secretary of the Zoological Society, is rendering good and great service to the Science of Zoology by publishing, in 'Nature,' these little monographs of new and little-known genera, and in no department of the Science was this more required than in the Struthionidous birds. We all recollect the time when there was only one species of cassowary recognised by ornithologists; but the later researches of naturalists have increased the number to nine, six of which are actually represented by living specimens in the Zoological Gardens. In order to render his descriptions more methodical, Mr. Sclater has divided them into three sections, giving the following sectional characters, which, however, I cannot but consider unnecessary.—*Edward Newman.*]

TABLE OF SPECIES OF THE GENUS CASUARIUS.

- a. Casside lateraliter compressa: appendicula cervicis aut duplici aut divisa.
1. *C. galeatus*, ex ins. Ceram.
  2. *C. Beccarii*, ex ins. Aroensi Wokan.
  3. *C. australis*, ex Australia bor.
  4. *C. bicarunculatus*, ex ins. Aroensibus.
- b. Casside transversim compressa; appendicula cervicis unica.
5. *C. uniappendiculatus*, ex Papua.
- c. Casside transversim compressa; appendicula cervicis nulla.
6. *C. papuanus*, ex Papua boreali.
  7. *C. Westermanni*, ex ins. Papuana Jobie (?).
  8. *C. picticollis*, ex Papua meridionali.
  9. *C. Bennetti*, ex Nov. Britann.

THE first of these sections contains the large species allied to the original *C. galeatus*. These have on their heads an elevated casque, laterally compressed and terminating in a ridge in the same line as the culmen of the bill. They have also a large fleshy caruncle on the front of the neck, ending in two distinct flaps. A single species, which stands somewhat alone and forms a second section, is also of large size, but has the casque transversely compressed and ending in a ridge at a right angle to the culmen. It has but one medial throat-wattle, whence it has been named "uni-*appendiculatus*." The third section embraces the smaller species allied to Bennett's cassowary, or the mooruk. These have the casque transversely compressed as in the one-wattled species, but have no wattle on the throat—only a bare, brightly coloured space. They are further distinguishable by the extraordinary form of the claw of the inner toe, which attains a remarkable length and is used as a weapon of attack. Of these three sections the following nine species are now known with more or less certainty:—

1. *The Common Cassowary* (*C. galeatus*), of which there is now no doubt that the island of Ceram is the true habitat. Of this species we have now one example, not yet adult, in the Zoological Society's Gardens.

2. *Beccari's Cassowary* (*C. Beccarii*).—This form is closely allied to *C. galeatus*, but is easily distinguishable from it by having only one medial throat-wattle, which is slightly divided at the extremity. It has a large elevated casque like the Australian cassowary, and remarkably long strong legs. The species was originally described by me from a specimen in the Museo Civico at Genoa, which was brought by Beccari from the Aroe Islands; but the living individual now in the Zoological Gardens (if it is really of the same species) was obtained in the south of New Guinea by H.M.S. 'Basilisk.'

3. *The Australian Cassowary* (*C. australis*).—Of this cassowary, remarkable in the adult for its large size and highly elevated casque, we have now two specimens living in the Gardens. It is a native of Northern Queensland and the peninsula of Cape York.

4. *The Two-wattled Cassowary* (*C. bicarunculatus*).—This species, which is easily known, even in the young condition, by having the wattles separated and placed far apart on the sides of the neck, was first described from two examples, formerly living in the Zoological Gardens, but now dead. There are several stuffed

specimens of it in the Leyden Museum, which were undoubtedly obtained in the Aroe Islands.

5. *The One-wattled Cassowary* (*C. uniappendiculatus*).—The single small wattle which ornaments the middle of the neck at once distinguishes this fine species, of which we have now in the Gardens a young specimen brought by H.M.S. 'Basilisk' from the coast on the north of New Guinea, opposite Salawatty. There is a good figure of this cassowary in the Supplement to Gould's 'Birds of Australia.'

6. *The Papuan Cassowary* (*C. papuana*).—This name has been given to two specimens in the Leyden Museum, obtained near Dorey, in New Guinea, by Rosenberg. Prof. Schlegel at first identified them with the mooruk, but afterwards admitted their distinctness. My belief is that they are probably the same as the next species (*C. Westermanni*), although the colours of the neck, as restored in the stuffed specimens, do not quite agree.

7. *Westerman's Cassowary* (*C. Westermanni*).—This species I established on a bird still living in the Zoological Gardens, which we received from Mr. Westerman in 1871. At first I referred this bird to *C. Kaupi*, of Rosenberg, until that naturalist showed that the pretended species which he had so named was nothing more than the young of *C. uniappendiculatus*. I then changed our bird's name to *C. Westermanni*. I have recently seen two other living specimens of this bird in the Zoological Gardens at Rotterdam. It has been suggested that its true home is the island of Jobie, in the Bay of Geelvink, where Dr. Meyer ascertained the existence of a cassowary, but was not able to procure specimens.

8. *The Painted-necked Cassowary* (*C. picticollis*).—This species was likewise established by me on a specimen now living in the Zoological Gardens, which was obtained by the officers of H.M.S. 'Basilisk' at Discovery Bay, on the east coast of New Guinea. It greatly resembles the mooruk, but differs in its brilliantly-coloured neck, of which I have given a drawing in the 'Proceedings of the Zoological Society' for the present year (1875), part 1.

9. *The Mooruk, or Bennett's Cassowary* (*C. Bennetti*).—In 1857 Mr. Gould described this cassowary from a drawing sent to him by Dr. George Bennett, of Sydney, and soon afterwards a living pair were sent to us by our excellent friend, after whom the species had been named. These birds bred in the Gardens in 1864, but we have now unfortunately lost them. Bennett's cassowary is an

inhabitant of New Britain, to the east of New Guinea, and is easily distinguishable from its congeners by its blue throat and back of the neck.

Omitting for the moment the doubtful *C. papuanus*, it will be thus seen that we have tolerably certain indications of the districts in which the other eight cassowaries are found. It would be very desirable, however, to get further information concerning them, and also to ascertain what is the cassowary of Jobie, and whether the other islands adjacent to New Britain possess, as is probable, indigenous species of this group.

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**Zoology of the Thames Valley.**—A zoological collection of remarkable interest, more especially to Londoners, has been added during the present year to the British Museum. It consists of the Thames Valley series of remains of British elephants, rhinoceri, deer, ox, &c., which have been discovered in the Ilford Marshes, near Stratford, during the last thirty years, and has hitherto formed the unique private collection of Sir Antonio Brady, of Stratford-le-Point. The nature and value of this collection, as now exhibited at the British Museum, will appear from the following facts:—It contains remains of no less than one hundred elephants, all of which have been obtained from Ilford. These are referable to two species, *viz.*, the mammoth (*Elephas primigenius*) and a more southern form (*E. antiquus*). The skeletons of each species are represented by many fine examples, and the collection of teeth and jaws represents elephants of every age and size, from the sucking calf, with milk molars, to the patriarch of the herd, whose last molars are so worn that they must have become useless for grinding his food. One characteristic of the Ilford elephant is the number of the plates in the last molar tooth, which has never been found to exceed nineteen or twenty, as against the twenty-four and sometimes twenty-eight in other species. The largest tooth is ten inches in length. The rhinoceri of the Thames Valley are represented by eighty-six remains, of three species, distinguished by the character or the absence of the bony nasal septum—*viz.*, *Rhinoceros megarhinus*, *R. leptorhinus* and *R. tichorhinus*. The British lion, which recent Geology shows to have been no myth, is represented by a lower jaw and a phalanx of the left fore foot. The Brady collection also includes the Thames Valley hippopotamus, which is found at Grays, as well as at Ilford. The ruminants, such as the stag, bison and ox, constitute fully one half the collection, numbering more than five hundred specimens. They include seven specimens of the great Irish elk (*Megaceros hibernicus*) and fifty of the red deer.—*Times*.

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**New European Bird.**—My friend the Hofrath Von Heuglin writes me word:—"I have received from the south of Russia specimens of *Calamodyta agricola* (*Ferd.*) = *Salicaria capistrata* (*Sevenzow*), found by Sevenzow also in Turkestan. It is a very good species, easily distinguished by its short wings, which are cut in a peculiar manner. It resembles in colour slightly *Calamodyta palustris*.

## MEASUREMENTS:—

Length	-	-	-	-	-	5 inches English.
Beak	-	"	-	-	-	$\frac{1}{2}$ inch "
Wing	-	-	-	-	-	2·3 inches "
Tail	-	-	-	-	-	2·1 " "
Tarsus	-	-	-	-	-	6·85 " "

"First quill very short; the third longest; the second about 0·22 of an inch shorter than the third, about equal to the seventh; the fourth about equal to the third. Superciliary lines very pronounced, white. First quill as long as the greater wing-coverts. The first tail-feather a quarter of an inch shorter than the fourth. At the base of the beak above on each side three bristles sufficiently long. Pileus dark brown circumscribed."—*C. R. Bree; Colchester, October 13, 1875.*

**Rare Birds at Flamborough.**—I was at Flamborough on the 27th of September, and called on Mr. Bailey, who kindly showed me the following rare birds, which he had killed near Flamborough Head this autumn:—A little gull, adult; a rednecked grebe, in almost perfect summer dress, and a splendid adult pomarine skua: this bird had the straw-coloured neck, the under parts nearly white, and the central tail-feathers projecting quite three inches. Mr. Bailey informed me that an adult ivory gull had been killed in Filey Bay during August, and preserved by Mr. Brown. The following week I was at Filey, and asked Mr. Brown for further particulars of this rare gull; he told me it was a fine old male, and was killed in the bay, about a mile and a half from shore. During nineteen years' experience he had never met with one before. I noticed in Mr. Brown's shop two adult glaucous gulls, which had been killed during the severe weather last winter; and also, I am sorry to say, a pair of splendid peregrines, male and female, which would no doubt have bred on the cliffs had their lives been spared.—*Julian G. Tuck; The Old Vicarage, Eberston, York.*

**Migratory Birds at Port Said.**—This is the season of arrival from Europe of quail and various migratory birds; they come to enjoy a hot climate, and warm is the reception they obtain on arrival. All who can walk, I was going to say, but certainly all who have a gun, are up in arms, and a keen sportsman showed me a new gun, which has just cost him ten shillings. I could not help feeling, on looking into his well-filled bag, that, be it Purdey or my friend's "gas-pipe," it is all the same to the quails, though the life, no doubt, of one will be saved at some time or other by the "gas-pipe" going

off at the wrong end, and leaving the other fellow dead. Strange indeed is the sight of the arrival of so many rare European birds in such quantities. You can stand on the sea-shore, or sit on your balcony in the town of Port Said, and see a string of birds on their way into the interior, looking for some place to settle. A quail will come into the balcony and "flop" down there, turtle doves and hoopoes settle on the house tops, whilst wayworn cuckoos and nightjars go cruising about the harbour, wandering in and out amongst the shipping. Nightingales and small fry settle on the heaps of coal which give the "colour local" to Port Said. Various are the traps and tricks devised by the Arabs to take small birds and quail. Bird-lime for the former, put on artificial and well-placed bushes, does great execution. For the latter a more complicated system is adopted. On a piece of open ground, near the sea-shore, long lines of rushes are stuck into the sand; the quail fly blindly against them and fall to the ground. At the base of the rushes tufts of long grass are put archwise, into the centre of which the quail crawls, and, never thinking of returning the way he entered, he runs his head into the net which is stretched over a corresponding hole at the back of the tuft. A simpler method is also used; a mere net, like a rabbit-net, but of smaller mesh, is stretched on any high land on the sea-shore; the tired birds blunder into it, and are collected alive by the watchmen.—*'Field.'*

**Whitetailed Eagle in Suffolk.**—An immature whitetailed eagle paid us a visit here a fortnight ago, and during its stay was fortunate enough to escape the keepers, who were on the look-out for it.—*Arthur J. Clark-Kennedy; Little Glemham, Suffolk, October 13, 1875.*

**Osprey in Suffolk.**—Yesterday (October 12th), while canoeing, I was much pleased in watching the graceful evolutions of an osprey, hovering over the River Alde, about five or six miles from the sea-coast.—*Id.*

**Osprey in Hampshire.**—On the 27th of September a man came and asked me if I had seen the "salmon hawk"; I told him I had not, but on the following day I took a stroll by the river in the hope of seeing what I supposed was an osprey, and was not disappointed, having seen it swoop down from a considerable height and take a fish from the water. Several gunners and gamekeepers were on the alert for it, but I have not heard that it was killed, and as I have not seen it again for several days I hope it has got safely away. It is not the first osprey which has been seen in this neighbourhood, but the species is of rare occurrence here, and it always appears in the autumn—possibly a bird of the year, whose plumage and experience are both immature. I saw one four or five seasons ago.—*G. B. Corbin; Ringwood, Hants.*

**Merlin killed against Telegraph Wires.**—I had a splendid full-plumaged merlin, a male bird, brought me on Friday, the 1st instant: it had killed itself by flying against the telegraph wires. The bird was quite

warm when brought to me.—*Richard P. Nicholls; Kingsbridge, October 5, 1875.*

**Note on the Lesser Gray Shrike.**—It may be desirable to record that the lesser gray shrike noticed by Mr. Stevenson (Zool. S. S. 4633), as having been recently captured at Great Yarmouth, is now in my collection.—*J. H. Gurney; Northrepps, Norwich, October 1, 1875.*

**The Redbacked Shrike a Butcher.**—Mr. Gatcombe makes mention of a pair of redbacked shrikes transfixing a small bird to a thorn bush (S. S. 4636). Perhaps this habit is too well established now to require any further instances as proof that the title of "butcher" is not merited by the gray sort alone; but Yarrell, in his first edition, says, "Its inclination to attack, and its power of destroying, little birds has been doubted," and, as I see the sentence is not struck out in the fourth edition, I take this opportunity of recording what happened at Runton, near Cromer, the summer before last. The keeper missed several pheasants about three days old. Suspecting who was the marauder, he carefully hid up, and saw a redbacked shrike bearing one of them off. He then shot the shrike and its mate, and found their larder, as others have been described, upon a thorn bush. He brought them to us, but I regret to say that we were absent, and thus missed seeing the birds and their larder. It is a thing I have often wished to see, but though I have been in countries where shrikes of different sorts are plentiful, I never came across one.—*J. H. Gurney, jun.; Northrepps Hall, Norwich.*

**Note on the Small Parrot of Natal.**—Mr. Forbes' suggestion as to the small parrot mentioned by Messrs. Woodward as occurring in Natal, contained in the 'Zoologist' for October (S. S. 4664), is valuable, and I trust that Messrs. Woodward will send specimens to England for identification. *Psittacula passerina* was included in Mr. Layard's 'Catalogue of the Birds of South Africa' (first edition) by a perpetuation of an error of Buffon's, and this circumstance probably led to the misnomer of the Natal bird. Mr. E. C. Buxton, who visited Natal a few years since, supplied me with the following note, which probably refers to the same species:—"There certainly is a parroquet, not *roseicollis*, found in the forests of Natal, as I saw *P. Levaillantii* and another bird very much smaller, which I took to be "passerina," but could not be sure, as it was young, and the plumage in bad condition. They were both taken from the nest near Cremer's, Unyeni Falls, Natal."—*J. H. Gurney.*

**Pied Flycatcher at Brighton.**—A young male pied flycatcher (*Muscicapa luctuosa*) flew in at an open window of the Grand Hotel, and was caught, in the first week of October. It was purchased by Mr. Swaysland.—*George Swaysland, jun.; 4, Queen's Road, Brighton.*

**Varieties of Blackbird and Thrush.**—The anomaly of a white blackbird (S. S. 4538) has more than once been recorded in the 'Zoologist.' A bird

of this species entirely white has never fallen under my own observation, but three or four more or less white-feathered specimens have passed through my hands; perhaps the most remarkable is one I obtained a season or two ago, in which the head, breast, neck and shoulders were pure unsullied white, and the rest of the bird was of the usual jet-black. Another specimen I have has a white ring round its neck; the throat, sides of the head and upper part of the breast are also white; but all the white portions are more or less dappled with black feathers: this specimen also has a few pale feathers in one of the wing-coverts. In all the specimens I have seen or handled they seemed to "show the white feather" in the vicinity of the head more frequently than upon any other part of the body. Is such the experience of others? On the 23rd of June last I had a thrush sent me: it was about half-grown, and had been kept in a cage from a nestling to the time of its death. The person who sent it informed me that the nest in which it was hatched contained four birds, two of which were similar to the one sent. Both of the pale-coloured birds were taken at the proper time; one soon died, but the other survived several weeks, and the old birds—neither of which differed in colour from the usual type—used to feed it through the wires of the cage. From the immature condition of its plumage it looks somewhat rough and ragged, and, from being kept in confinement, its tail and under parts are much soiled, but the whole bird is of an uniform white colour, tinged very slightly with yellow upon the wings; the beak and legs were also dingy white. The eyes, which appeared to be opaque and sightless, were of a pale pink hue, which I believe is often the case with these white varieties, and indeed we know it is so in the case of rabbits, &c. Whilst on the question of white varieties, I may state that for the past two years a cock sparrow has frequented this neighbourhood, of which the wings—and especially the larger quill-feathers—are pure white, which makes the bird a very conspicuous object, especially when flying.—*G. B. Corbin.*

**Fieldfares versus Missel Thrushes and Starlings.**—The editorial doubt expressed with regard to the occurrence of the fieldfare in this country so early as July (Zool. S. S. 4623), is judicious and reasonable. During the latter part of June and the whole of July I was frequently observing missel thrushes in flocks, especially in a gentleman's park, on one side of which some high thick fir trees stand, and I believe the missel thrushes took advantage of this retreat for roosting, as in the evening numbers of them would leave the trees if a stone was thrown into them. Again, I noticed that young starlings were unusually common this season, appearing in almost incredible flocks about the date named, keeping up a constant twitter in the low damp meadows, where they fed and quarrelled to their heart's content, and at night roosted in the reed-beds of the river close by. I have not much doubt it was one of those species, which, at a

glance, were mistaken for fieldfares. Whilst speaking of starlings, I may mention a trait in their habits, which no doubt is well known, although I do not recollect having seen it on record. On fine sunny days in the autumn they fly into the air with swallows, &c., and catch insects similar to that summer-loving tribe. On the 19th of September I watched several starlings busily engaged with a number of sand martins, high over the river, hawking for flies; but of course the difference in the powers of flight possessed by the two species was very noticeable, and the starlings had a peculiarity of frequently settling upon the higher branches of some tall aspens near, and in this position uttering their prolonged melancholy whistle.—*G. B. Corbin.*

**Supposed Occurrence of *Sylvia aquatica* in Kent.**—On the 12th of October, while rambling over the Cliffe marshes, near the Thames, I saw a little bird flitting along a reedy ditch, which at first sight I considered to be a sedge warbler. Pursuing it, however, with my glass in hand, I got a very near view of the bird, and was surprised to find a broad blackish band on each side of the head, giving it the appearance of having the whole head black in certain attitudes. This, added to the very distinct markings on the upper surface, gave the bird an odd bunting-like appearance while creeping about the bottom of the reeds; on the wing, however, it was indistinguishable from a sedge warbler, except, as I fancied, by a warmer and richer colouring. Consulting Bree and Gould, I was confirmed in the view I take, *viz.*, that the bird was the aquatic warbler. The *distinct broad blackish band* seems to me to give a clear mark of distinction from the sedge warbler. I saw a merlin over the marshes both that day and the next; and we have had a stone curlew about us—a bird hitherto quite unknown here. A single whimbrel appeared in the open fields near Chalk one wild windy day.—*Clifton; Cobham Hall, Gravesend, October 14, 1875.*

**Bearded Tits breeding in Confinement.**—The habits of our common wild birds in confinement are so rarely studied, that I venture to think the following account may not be altogether uninteresting:—Last November I procured two hen bearded tits (*Calamophilus biarmicus*), which I have reason to believe had recently been imported from Amsterdam. I had a fine cock bird already in my possession. In the spring they evinced a desire to breed, and as there were difficulties in the way of planting a bed of reeds in a cage four feet by two, I cast about to try and find a substitute for their natural nesting-ground. It was not long before my eye lighted on a coarse grass, of which I inclose a specimen, growing on a railway embankment in large tufts to a height of eighteen inches or two feet. With the aid of a friendly railway porter, I procured sufficient to fill several good-sized flower-pots, which I introduced into the cage. In the centre of one of the thickest plants I placed a wire net, such as is commonly given to canaries to build in.

Scarcely had I closed the door of the cage before they were inspecting and trying, with loud demonstrations of joy, the several plants; and so suddenly were their domestic arrangements made that they commenced laying before I had time to supply them with nesting materials. The consequence was that the eggs, four in number, were laid on the bare wire, with the exception of a few blades of grass, which the birds had managed to pluck from the growing plants. The eggs, which were extremely delicate and fragile, were broken by their own weight against the wire; and the birds forsook the nest, and built another on the floor of the cage amongst some hay and grass I had subsequently thrown in. I then procured a quantity of the tops of the common reed, about eighteen inches in length, and dropped them into the cage, in an upright position, amongst the growing grass, at the same time introducing some strips of bass matting, cut into lengths of from six to twelve inches; also some meadow pipits' nests and some of the seed-down of the common sallow. The nest at the bottom of the cage was then deserted, and another one built in the centre of a tuft of grass. This was a deep cup-shaped, compact edifice, the exterior of which was composed of matting, lined with the fine grass from the pipits' nest, with here and there a piece of sallow-down. After laying twelve eggs they began to sit, but at the end of eight or ten days this nest was deserted and a new one commenced, the previous nest being pulled to pieces, and the materials used in the construction of the new one. From first to last six nests were formed, containing respectively four, seventeen, twelve, eight, four, and four eggs; total, forty-nine eggs laid between the 30th of May and the 2nd of August. Two eggs were frequently laid the same morning; I therefore presume that the nests were common to both hens. The cock was the principal architect, and he also took his turn on the eggs during the day. The nests were so well concealed that the only way I could see into them was by looking into them from the roof of the cage. Whether the birds perceived this, or whether it is their natural habit to cover up their eggs, I don't know, but on leaving the nest after laying, the eggs were invariably concealed by the lining of the nest being pulled over them. As the birds do not appear to have suffered any ill effects from their prolific laying, I hope to be able to rear young ones next spring, and should be glad if any of your readers would kindly give me any hints as to the proper food and treatment that would be likely to conduce to success. I forgot to mention that, on clearing away the grass in the autumn, I found so many fragments of egg-shells as would induce me to believe that probably the number of eggs laid in reality exceeded fifty.—*J. Young; 5, Denbigh Road, Notting Hill. (From the 'Field' of October 9th.)*

**Tawny Pipit at Brighton.**—A young male tawny pipit (*Anthus rufescens*) was caught in a pair of clap-nets by a birdcatcher at the east end of Brighton, and was purchased by Mr. Swaysland.—*G. Swaysland, jun.*

**Lapland Bunting at Brighton.**—A young male Lapland bunting (*Plectrophanes lapponica*) was caught in a pair of clap-nets in the first week of October, and was purchased by Mr. Swaysland.—*G. Swaysland, jun.*

**American Whitewinged Crossbill in the North Sea.**—An account of an American whitewinged crossbill (*Loxia leucoptera*) of mine, which flew on board the vessel 'Beecher Stowe' in the North Sea, appears in the 'Norfolk and Norwich Naturalists' Transactions for 1873' (p. 117). I placed it in the aviary of Mr. Stevenson, but it died while I was in Egypt, after living nearly five years in confinement. As it is such a rare bird I think it worth sending a note to you about it. Mr. Fitton's specimen, which was washed ashore at Exmouth, is now in Mr. Van Voorst's possession.—*J. H. Gurney, jun.*

**The Whitebacked Woodpecker (*Picus leuconotus*, Bechst.) a British Bird.**—In the 'Zoologist' for 1861 (Zool. 7754) the late Dr. Saxby records a couple of greater spotted woodpeckers at Halligarth,—the first ever killed in Shetland,—and the forerunners of a movement which extended from Norfolk to the Færoe Islands. In 1868 a portion of that naturalist's collection passed into my possession, including one of the woodpeckers. My father at once judged it to be something more than a variety, and soon after, Messrs. Sharpe and Dresser being engaged in writing the history of this species for the 'Birds of Europe,' I submitted my specimen to them; and, as they give a lengthened description of it, I will only say that the chief points in which it differs from the young of *P. major*, *L.*, are the very distinct streaks of brownish black down the sides of the breast and belly, the ash-gray wing-coverts and nape, and the pale vermilion vent. They were unable to say anything positive about the bird; but Mr. Gould asked for the loan of it, and made it out to be the young of the whitewinged woodpecker (*Picus leuconotus*), and before concluding his work on the 'Birds of Great Britain,' he worthily installed it as a new British bird.—*Id.*

**Tichodroma phænicoptera in Norfolk.**—With reference to the extremely interesting note in the 'Zoologist' (S. S. 4664) as to the occurrence of a British specimen of the "wall-creeper," allow me to add that Stratton Strawless Hall, where the bird was obtained, is situate in Norfolk, about seven miles north of Norwich. It was an ancient mansion, which subsequently to 1792 has been entirely rebuilt.—*J. H. Gurney.*

**Hoopoe near Ipswich.**—A hoopoe, recently shot in the neighbourhood of Ipswich is now in the hands of Mr. Podd, birdstuffer, of that town, for preservation. Is it not a very rare bird? and have you any record of others being shot in England?—*Correspondent of 'Field' Newspaper.*

**Young Cuckoo and Robin: a Case of Adoption.**—About the 23rd of May last I discovered a titlark's nest, upon the heaths near here, containing five young ones in a very juvenile condition. As I passed the same situation almost daily, I viewed the tiny inmates of the nest with some

degree of interest, and it very soon became apparent that one of them was not only larger but a different bird altogether, and I very naturally supposed it to be a young cuckoo; and this supposition was fully confirmed by the ejection of the four smaller and weaker individuals, which I found one morning dead outside the nest, and I also noticed that an old cuckoo was often in the vicinity, and its appearance helped to confirm the supposition that the egg is not entirely abandoned after being laid by the parent cuckoo. The little fellow grew rapidly and soon filled the nest, as the foster-parent was most indefatigable in her exertions to feed the wide-mouthed and apparently ever-hungry usurper, although her own natural brood had perished in her presence. One day on going to the nest, which was in the heather beneath a furze bush, I found the nestling in an unusual agitation, hissing and chirping in an extraordinary manner, and when I put my hand towards it, it came out at me very fiercely, jumping at my leg as if it meant mischief, provided it had the power, and on putting it back into the nest again I found it had no intention of staying there any longer. I watched for some time, thinking the titlark would hear its cries, for previously it was very solicitous about the comfort of its charge; but no titlark appearing, I conjectured it had been killed in some way or another, and that the poor cuckoo was suffering from hunger, and I was somewhat grieved that I was obliged to leave it in that condition, not knowing how to supply its wants. In the evening I went to the spot where I left it in the morning, intending to take home the little orphan if it was still there; but imagine my surprise when, on a low bush near, I saw it, with quivering wings, being fed by a robin! I did not see the titlark again, but many times I saw the robin feeding its adopted child, which I believe it continued to do till the cuckoo could provide for itself. Several persons to whom I pointed out this case of adoption can confirm the truth of my observations if a shadow of a doubt exists in the mind of any one.—*G. B. Corbin.*

**Late Breeding of the Wood Pigeon.**—As I was walking in a wood near Naburn, not far from York, on the 30th of September, I found a wood pigeon's nest containing two young birds, which appeared to be about ten days old. Again, on the 2nd of October, a friend of mine, Mr. Ashby, found another nest of the same kind, which contained two eggs that were not at all sat upon, although the bird flew off as he was ascending the tree. Is not this rather late for the breeding of the wood pigeon?—*Joseph E. Gripper; 20, Bootham, York, October 5, 1875.*

**White Partridge near Kingsbridge.**—A white partridge was shot near here a short time since. Two years since two white partridges were shot about four miles distant from where this one has now been killed. They were all birds of the year: beak, legs and claws white; eyes dark, or of the usual colour. Another was shot on the 14th instant near here.—*Richard P. Nicholls; October 19, 1875.*

**Plumage of the Stilt.**—I observe that, in recording two Norfolk-killed specimens of the stilt, Mr. Stevenson refers to some shot by me in Egypt. I have lately returned from that country with a very fine collection of nearly six hundred birds, and among them several stilts, and I am still very much puzzled about the plumage. I should be much obliged if any one could tell me whether the *white-headed* ones are the summer plumage and the dark the winter? That is my idea, though some books on Natural History state the contrary, but can give no reasons. We always found, as Mr. Stevenson says, that the *dark-backed* birds were males; but I am sure the difference in the head—or rather in the nape—cannot be ascribed to sex. In most of the specimens we shot it was brown, but in a few it was black, and in some it was almost white. I never got one quite like the Ditchingham example, having black feathers “sprouting” out of the occiput and the rest of the head white; but I shot several in most perplexing plumage. I fancy that the Ditchingham bird, if it had been killed a few weeks or days earlier, would have been found to have the occiput and hind neck entirely white—like one in my collection, which was killed on Breydon in 1823.—*J. H. Gurney, jun.*

**Green Sandpiper at Northrepps.**—In recording a green sandpiper at Northrepps on the 21st of July (S. S. 4534), Mr. Stevenson has not added the curious fact that the duck-pond where it was wading is in the middle of our premises, with the house on one side and the stables on the other. I accounted for its presence in such a place by the fact that there had been during the morning one of the most tremendous downfalls of rain we ever experienced, which filled the pond a foot above its usual limits.—*Id.*

**Longtailed Duck in Kingsbridge Estuary.**—A female specimen of the longtailed duck was shot on the Kingsbridge Estuary on the 14th instant. The gentleman who shot it also obtained a male, almost in full plumage, on the 28th of October, 1865. They were both solitary birds.—*Richard P. Nicholls; October 19, 1875.*

**Young Razorbills and Guillemots.**—In the early autumn we have a good many young guillemots and razorbills off the Norfolk coast—single birds, generally attended by the dam, which have come from Flamborough or some more northern nursery, and entrusted themselves when but one-third grown to the open sea. As their wings are not developed, being but three inches and a quarter long from the carpus, they are totally unable to fly, and I have seen one afford great sport to some bathers in the surf, who eventually captured it. The fore neck in the youngster razorbill varies in colour, being sometimes black and sometimes pure white. As is well known, razorbills and guillemots may occasionally be obtained with the black throat in winter; but the reverse has happened to me, for I have shot a razorbill in the middle of July with a white throat, and another on the 14th of

August with only a little dark moulting. Looking at the skins it is evident from their beaks that they are not mature.—*J. H. Gurney, jun.*

**Redthroated Diver.**—In October redthroated divers often come up the Cley and Blakeny channels, to the distance of two or three miles from the sea, and are occasionally left behind by the rapidly receding tide. A common razorbill was cut off in the same way: I found him sitting disconsolate nearly a mile from the water's edge. I have a bullet which was taken out of a redthroated diver's neck, where it had probably lain for a long time, for when it was given me it was completely embedded in fat. I have read one or two instances of arrow-heads—supposed to be Esquimaux arrows—being found in the bodies of divers which were shot on the coast of Ireland. I have several times had the present species sent to me with the red neck-patch, but they were not spotted on the back with white spots, as Mr. Yarrell represents in his plate. I once got a variety with a round white spot, the size of a shilling, on one side of its neck: it was shot in October, and was beginning to shed the red throat.—*Id.*

**Singular Freak of a Herring Gull.**—A young herring gull was taken from the nest in the cliffs of Burrow Island, in Biglensy Bay, in May, 1871, and was carried to the village of Biglensy, about two miles from the sea. Having had one of its wings clipped, it was placed in a small yard at the back of the village inn, where it became very domesticated and bold, being fed upon any offal that was thrown from the house. It adopted but a few special friends; one, a little boy about eight years old, was allowed to handle it in any way he thought proper, and he became quite a favourite. The bird would ramble about in a field adjoining the yard at pleasure, and had been seen occasionally beyond those bounds in other fields nearer the sea. It remained in this state until May, 1872, when it was missed and given up as entirely lost: but, strange to say, one morning in November, 1873, a beautiful white and gray gull alighted on the house top and dropped down into the yard. All attention was directed to it immediately: it seemed to have precisely the same habits as their old lost favourite, but—not understanding the change of plumage to the adult state—it was not believed to be the same, until the little boy came on the scene, whom the gull instantly recognised, and allowed him the same familiarity as formerly: that decided the point. The bird has continued up to the present to regularly visit them every day for about two hours, when it returns to its native haunts. On several occasions another bird of the same kind has been seen, on the wing, in its company, but does not venture to drop into the yard.—*Henry Nicholls, jun.; Roseland, Kingsbridge, South Devon, October 5, 1875.*

**Audacity of the Common Skua** (*Stercorarius catarrhactes* (Linn.))—The following curious story was told me about the great, or, as it is called, the common skua. At the edge of Blakeny channel, a few miles from here,

some boatmen happened to see a young duck, at which two or three of these big fellows were making swoops. They were very tame, allowing one of the men to approach to within about fifteen yards and pelt them with stones, and when one of them was hit they only moved rather further off. The man went away and left them, but afterwards, having to return to the same place, he laid down upon the shingle and went to sleep. He had not been dozing long before he was roughly awoke by a tremendous blow on the face from one of the great skuas. Again the unprovoked attack was repeated, but this time he feigned to be asleep, and, raising his arm as the bird came at him, he felled it on to the ground, but it recovered itself and flew away. I have no doubt that this story is substantially true, or I would not send it to you; and, from what I read of the great skua in books on Natural History, that species would seem to have been long noted for the daring impetuosity with which it attacks all trespassers upon its breeding-stations. Richardson's skua, and probably all the skuas, have also got the same character.—*J. H. Gurney, jun.*

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*Notes on the Autumnal Migration of Lestris Richardsonii and L. pomarinus in Killala Bay and the Moy Estuary.* By  
ROBERT WARREN, jun., Esq.

ON reference to the map of Ireland it will be seen that Killala Bay opens to the north, and is bounded on the west by the County Mayo and on the east by Sligo, and Bartra, a narrow island about three miles long is situated right across the inner part of it, separating the open bay from the estuary of the River Moy, the eastern end of the island being separated from the Sligo side by the narrow channel of the Moy, and the western by the little channel running from Moyne Abbey.

When residing with my brother, Mr. E. H. Warren, on the island of Bartra, in 1851, we observed the first of the skuas on the 8th of October, when two flocks of six and eight birds were seen at a great height passing towards the south-west; again on the 15th we counted seventy-two birds as they crossed the island coming from the open sea in small detached flocks, all keeping the same course across the country to the south-west.

On the 16th the flight still continued, and we counted upwards of a hundred pass in a very short space of time; but as we were only able to watch them for about two hours each morning between eight and eleven o'clock, it is very likely that only a small part of

the flight came under our notice. Although some of the skuas appeared fatigued by their long flight, and would occasionally rest on the water for a few minutes, then rise and pursue the course of their companions, yet none of them appeared in want of food, for although there were numbers of gulls on the sands while they were passing, we did not see any of the skuas attempt to chase. We remarked a good many adult birds, with light-coloured throats and bellies and long tails; but the greater part of the flight consisted of dark-coloured immature birds. One of the latter I shot as a small flock passed over me; and at the time, being doubtful of the species, I sent it for identification to my friend the late Mr. William Thompson, of Belfast, who pronounced it to be Richardson's skua. My brother, during his five years' residence at Bartra, from 1851 to 1855, has observed skuas on their passage to south-west every month of October, but never in such numbers as the flight of 1851.

The pomarine skuas I first met with in 1862. For several days previous to the 22nd of October the weather had been very stormy, blowing in wild squalls, with heavy showers from the south-west: on that morning I was standing at the parlour window of Moyview, looking down the river towards Bartra, and just thinking that some skuas might appear (as the weather was similar to that when the great flight of Richardson's skua appeared in 1851), when I suddenly remarked a flock of ten or twelve dark-looking birds flying slowly up the river from the sea. I immediately took my gun and ran down to the shore, but only reached it in time to see the skuas pass out of shot. My disappointment, however, did not last long, for in a few minutes after a flock of five birds passed, out of which I was so fortunate as to obtain a fine specimen of the pomarine skua in almost perfect adult plumage. This bird is now in the collection of the Dublin Natural History Society. Several flocks passed on afterwards, and I was able to secure a second bird, also a Pomarine, in a like stage of plumage. Shortly after obtaining the second bird I was called away to attend to some business matters, and when I returned to the shore I found the flight had ceased for that day.

On the morning of the 23rd the gale still continued, but had changed round to the west-north-west, and consequently the skuas in their flight up the river kept close to the western or Mayo side, and none came within shot of the Sligo shore of the river, upon

which Moyview is situated. On both days the skuas, after keeping along the course of the tidal part of the river for about two miles, directed their flight right across the country to the south-west.

I had an excellent opportunity for observing those that passed on the 22nd, and have little hesitation in considering the greater part, if not all, to have been pomarines: the first flock of ten or twelve birds were undoubtedly of that species, their great size and clumsy-looking tails clearly pointing them out as such, and all exhibiting white underneath, and long tails prove them to have been adults.

When seen during flight the pomarine skua's tail presents a very clumsy, awkward appearance, in contrast to the elegantly pointed tails of the smaller skuas: this is caused by the two elongated tail-feathers being *bluntly* rounded at the ends and *twisted* for nearly half their length at almost right angles to the plane of the short tail-feathers, so that when a side view of the bird is taken the full breadth of the long tail-feathers is shown, giving the tail that thick clumsy appearance which so easily identifies the pomarine skua on the wing. Very few dark-coloured or immature birds were seen on either day—probably not one to ten of the white-bellied ones.

I could not be quite certain as to which species the birds seen on the second day belonged, as they passed at too great a distance for me to judge of their size and appearance; but as the first day's flight was undoubtedly made up of pomarines, we may safely infer that the second day's was a continuance of the first, and therefore was of the same species.

I may add an extract from a most interesting letter of Mr. J. C. Niligan, of Tralee, read before the Dublin Natural History Society in March, 1863, describing his meeting with a large flight of skuas in Tralee Harbour on the 25th of October,—just two days after the last of the skuas left this on the 23rd,—and I think satisfactorily proving that the skuas after leaving this bay and crossing the island continued their flight along the coast to Tralee Harbour, where they took shelter while the stormy weather lasted. He says:—"During the first fortnight of October, 1862, we experienced very heavy gales on the coast of Kerry. On the 24th of October the wind, which had been west and west-south-west, went round to north, shifting occasionally to north-north-west and north-west. My brother mentioned to me that he had observed a gull flying over the beach of the north side of the harbour, with the appearance

of which he was unacquainted; we during that day, being on the look-out for him, saw the bird without being able to get a shot at him: the bird was, I am confident, a Richardson's skua. Next day, on going to the beach, we saw several Richardson's, and amongst them three or four pomarines. We succeeded in shooting a good many of the former, but it was not until the 27th that we got within shot of one of the latter, which my brother shot: it was a male pomarine, in the black plumage. The flight of skuas remained about our harbour for several days—I may say whilst the heavy weather lasted: on the weather moderating a little they all disappeared. I may mention that while the two species of skuas which I have mentioned remained, I also observed one of the common skuas (*L. catarrhactes*)."

The next occasion on which I had the pleasure of seeing skuas passing was on the 18th of September, 1869. It was a *fine, bright, calm* day: I was in one of my fields looking at the reapers at work, when, chancing to look upwards, my attention was drawn to a flock of fifteen skuas passing at an immense height on their old course to south-west. If the day had not been so clear I could not have recognised them as skuas, as I was only just enabled to make out their long tails against the blue sky, they kept at such a height. It is most probable that the great flight had passed on before, and that I only chanced to see the last of the flocks.

Again, on the 3rd of October, 1874, I was fortunate in witnessing a small flight, or part of a flight, of skuas migrating in the usual direction. The weather had been very stormy, with heavy showers, for some days before; wind north-west on this day, when, about ten o'clock, I observed a flock of about twenty birds flying up the river from the sea; a short time afterwards four birds passed; then a little flock of three, which were followed by four, and in about a quarter of an hour a solitary bird (which I think was a pomarine) brought up the rear, and, as far as I saw, ended the flight for the day.

I may conclude these notes by giving the dates of the occurrence of solitary birds unconnected with the flights already mentioned, but probably stragglers from migratory flights passing unnoticed at the time.

On the 29th of September, 1855, I shot an immature specimen of *L. Richardsonii* near the island of Bartra; and sometime in the month of September, 1858, I obtained another Richardson's skua,

in a similar state of plumage, near the same place. On the 25th of October, 1862, I found an immature *Lestris Buffonii* lying dead on the Enniscrone Sands, opposite the bay. On the 8th of September, 1865, I saw near Bartra a live bird, which I think was a Richardson's skua; and on the 15th of October, in the same year, I observed a bird, which I considered to be a pomarine; it haunted the river for some days after. On the 3rd of October, 1867, I met a skua on the river, but could not identify it; and on the 18th of the same month Mr. N. Handy, of Ballintubber, near Killala, gave me an immature longtailed skua (*L. Buffonii*), which he met on a grouse mountain, and shot as it rose from the carcass of a horse, upon which he said it had been feeding.

I have not had the pleasure of seeing skuas on their passage every season, as I have not had the requisite leisure time for watching for their appearance during the flight time in September and October; and also the state of weather and direction of the wind influences the course of their flight so much after they enter the bay from the sea, that my chance of seeing them from this locality is very uncertain; but any person residing on Bartra (as my brother was) would be almost certain of seeing skuas pass every year. The position is so central that few birds entering the bay from the sea and passing inland could escape the notice of the observer.

No account of the occurrence of skuas in large numbers on their southerly migration having come under my notice (except that of Mr. Niligan, already quoted), I am induced to put forward these rough notes, in the hope of eliciting further information on the subject from correspondents of the 'Zoologist.'

ROBERT WARREN, JUN.

Moyview, Ballina, October 20, 1875.

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**Golden Eagle near Chatteris.**—It may interest many of your readers to know that a fine specimen of the golden eagle was killed on Langwood Farm, belonging to Mr. W. Skeales, near Chatteris, Cambridgeshire, on Thursday last, the 14th instant. I think the very flat surface of this and surrounding country makes the visit of this rare bird the more remarkable. The bird met the ignoble fate of being knocked down with a stick as he was attempting to rise.—*C. Willmott; Triangle, Hackney, October 26, 1875.*

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**A Snake in Ireland.**—The enclosed letter to the editor of the Irish 'Daily Express' may excite speculation as to how the snake got where it was found. The fact is worthy of record, at any rate, that a snake has been caught in Ireland. What would St. Patrick say?

"Sir,—My gardener this morning killed a large snake in the garden here, measuring five feet long by three inches in circumference. It has a black back, with light yellow belly; I do not know what species it belongs to, but have preserved it in spirits. Is it not very rare to find such in Ireland?"

"Your obedient servant,

"FRANCIS WM. GREENE.

"Kilranalagh, Baltinglass, Co. Wicklow,  
September 11, 1875."

I have not seen it, but my correspondent, Lady M., has it in her possession, and remarks that its head is very small and its nose pointed; it is quite five feet long, black, and the colour of ashes beneath. It appears by a letter from Mr. Greene, "that a gentleman brought two Indian snakes to Ballinrodan, both of which escaped six or seven years ago; one of them was found half eaten by a pig shortly afterwards, and this might be the other, though how it lived through the winters I do not know." It would be interesting to ascertain whence the snake came and how it found its way to the proscribed island.—*J. Fayerer; London, Sept. 28. (From 'Nature,' October 9th, 1875.)*

[It would be very desirable to learn the generic and specific character of this snake. The loose way in which the information is given is not likely to induce the belief that any snakes are indigenous to Ireland.—*Edward Newman.*]

**Large Surmullet off Penzance.**—I yesterday captured a surmullet which measured over all one foot four inches and three-quarters; from eye to fork one foot and half an inch; in greatest girth ten inches and one eighth; and which turned the scale at thirty-eight ounces and a half. This is, I believe, the largest surmullet on record, although it is lighter than the next to it by an ounce and a half. (See Couch's 'British Fishes,' vol. i. p. 216).—*Thomas Cornish; Penzance, October 9, 1875.*

**Fish from the Clouds.**—There is a very current, though erroneous, belief that showers of fish are to be met with at times in India. It rests on such statements as the following, *viz.*, that fishes are often found in situations where their presence cannot be accounted for otherwise than on the supposition that they have descended from the clouds. To quote an average specimen, Emerson Tennent, in his book on Ceylon, says: "I was driving

in the cinnamon gardens near Fort Colombo, and saw a violent, but partial, shower descend at no great distance from me. On coming to the spot I found a multitude of small fishes leaping on the gravel of the high road. The water was half a mile from the sea, and unconnected with any water-course or pool." Such statements at first sight appear very conclusive, but in reality they do not at all go to show that the fishes have fallen with the rain. The facts are these, that the first burst of the rains the creatures commence their migrations. Quitting the large and turbid rivers, they seek the smaller streams and ponds that are rapidly formed in all low situations. In such places they generally breed, remaining until the close of the rains, when they begin to drop down again into the larger streams. There are, of course, fishes that bury themselves in the mud, but these are not of them; they are bright silvery creatures that delight in clear water. The showers at the first burst of the monsoons are always partial, and of extreme violence, so much so as to cover the level fields in a few minutes with a depth of water sufficient to enable even large fish to make their way with ease anywhere over ordinary fields. The slightest depression, hardly noticeable when the rain is over, is usually covered with a broad stream of water eight inches or twelve inches deep, and on such occasions it is usual to find, not only the water tables of roads, but the roads themselves covered with water; and it happens, as might be expected from the rapidity with which the waters pass off, that fish in their passage to and fro are often suddenly stranded, so to speak. This simple explanation of the above unaccountable phenomenon is, in my opinion, the correct one, and it derives additional support from the following facts, *viz.*, no observer has stated that he has seen the fish actually fall; they are, moreover, never found in water-barrels or reservoirs that collect water from the roofs of houses; and the creatures are always said to be alive when first seen—a fact which in itself is conclusive proof that they have not fallen from the clouds, for the velocity with which they would have reached the ground from such a height would to a certainty have killed them; even though they fell on the surface of water deep enough to prevent their reaching the ground, they would of necessity be killed by concussion. Bearing these facts in mind, there is no need to resort to theories of fish being taken up in water-spouts to account for the supposed phenomenon in question, for if so taken up, which is doubtful, they could not afterwards be found on dry land alive; if conveyed to earth in this way, they would be found, if not bruised and mangled, at least quite dead.—*W. Sharpe; Bombay, July 6, 1875. (From the 'Field' Newspaper.)*

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**Colour of the Shell in *Helix pomatia*.**—In the September number of the 'Zoologist' (S. S. 4627), the Editor, in criticising my recently published 'Rambles in Search of Shells,' and referring to the coloured plates therein,

says:—"The only figure that strikes me as erroneous, and that only in having too much colour, is *Helix pomatia* in plate ix.: this species in a state of nature is nearly white; it is so nearly the colour of chalk, that it is most difficult to distinguish it from a lump of chalk." Upon this point I beg entirely to differ. Out of a series of eight in my collection only one can be said to be white, or approaching to white, and in that one the transverse brown bands are clearly discernible. My colourist had four average specimens placed before him to copy from, not one of which was white; and I have since received from Lord Erskine four others picked up at Mickleham, near Dorking, all of which correspond very fairly in colour with my figure of that species on the plate referred to.—*J. E. Harting; 24, Lincoln's Inn Fields.*

[I have great pleasure in publishing Mr. Harting's note, but I must take the liberty of appending this apposite couplet from 'Hudibras':—

"A man convinced against his will  
Is of the same opinion still."

—*Edward Newman.*]

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**Portuguese Man-of-War.**—On Thursday, October 14th, a fine specimen of the Portuguese man-of-war was taken by a boatman at St. Leonards. It was fully inflated, and measured nearly nine inches in length. It has been sent to the Brighton Aquarium.—*J. S. Bowerbank; 2, East Ascent, St. Leonards-on-Sea, October 15, 1875.*

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**Zoological Society of London: Additions to the Menagerie from the 9th to the 20th of August, 1875.—**

N.B.—The day of the month when the specimen was obtained precedes its name; the number of specimens, if more than one, also precedes the name; when a species is new to the collection an asterisk (\*) is affixed to the name: the country of which the species is native follows the name; the donor's name follows the name of the country, except when the specimen has been purchased; the part of the Gardens where the specimen is exhibited follows the donor's name.

- August 9. Two purple cow-birds (male and female);\* Peru; presented by Prof. W. Nation; parrot house.
11. Three American crows; Bermuda; by Mr. Saville G. Reid; crows' cages.
13. Coypu (male); South America; rodent house.
14. Three spotted cavy's; on approval; rodent house.
- „ Three Hoffman's sloths; Panama; on approval; sloths' house.
- „ Red deer (female); British Isles; by Mr. S. Carter.
- „ Edible frog; Europe; by Miss M. Garrard; reptile house.

- August 15. Common adder; British Isles; by Mr. H. J. Johnson; reptile house.
16. Two kinkajous (females); British Honduras; by Mr. James Wickin; small mammal house.
- „ Central American agouti; Port Lemon, Costa Rica; by Mr. J. C. Hussey; rodents' house.
- „ Two brown gannets;\* Port Lemon, Costa Rica; by Mr. J. C. Hussey; eastern aviary.
- „ Woodford's owl;\* Natal; by Mr. W. E. Oates; owls' cages.
17. Two crested pigeons; bred in the Gardens; western aviary.
- „ Two Gordon's terrapins; Trinidad; by Mr. Devonish; reptile house.
18. West Indian agouti; St. Vincent; received from Mr. Hawtayne; rodent's house.
19. Blotched genet; bred in the Gardens; small mammal house.
- „ Purple-capped lory; Moluccas; by Mr. T. P. Medley; parrot house.
- „ Two green toads, two fire-bellied toads, five green tree frogs, and one spotted salamander; Europe; by Mr. F. Coleman; reptile house.
- „ Four Alpine newts; Europe; by Mr. F. Coleman; fish house.
20. Tiger; India; deposited; top yard.
- „ Five starred tortoises; Ceylon; deposited; reptile house.
- „ Mexican guan; Central America; by Mr. A. Warrington; eastern aviary.
- „ White-thighed colobus; W. Africa; on approval; monkey house.
- „ Wryneck; Europe; by Mr. G. H. Brooks; western aviary.

## ADDITIONS FROM AUGUST 30TH TO SEPTEMBER 18TH, 1875.

- Aug. 30. Five American box tortoises and one wrinkled terrapin; from Nicaragua; presented by Mr. Edmond Isaacson; reptile house.
- Sept. 1. Indian fruit bat; monkey house.
2. Wapiti deer; born in the Gardens; deer sheds.
- „ Arctic fox; Arctic Regions; by Mr. C. R. Wood, R.N.; small mammal house.
3. Montagu's harrier; Europe; by Capt. Hadfield; kites' aviary.
- „ West African tantalus; received in exchange; western aviary.
- „ Two Brazilian tortoises and an Abyssinian pentonyx; received in exchange; reptile house.
- „ Indian leopard; by Mr. J. Nicholls; carnivora dens.
- „ Lesser sulphur-crested cockatoo; Moluccas; by Mrs. Smith; parrot house.
- „ Three Porto Rico pigeons; Rio Grande de Sul; by Mr. F. C. Webb; western aviary.
- „ White-faced owl;\* New Zealand; owls' cages.
6. Malabar parrakeet; S. India; parrot house.

September 6. Blue-crowned conure; Brazil; parrot house.

6. Two burrowing owls; America; owls' cages.
- „ Two forktailed jungle fowls and two hybrid jungle fowls; Java; by Mr. W. T. Fraser; pheasantry.
7. Dotterel;\* British Isles; by Dr. Bree; fish house.
- „ Spotted salamander; Europe; by Mr. A. H. Smith; reptile house.
- „ Jackal;\* by Mrs. Mumford; winter aviary.
- „ Two rosybilled ducks; bred in the Gardens; duck pond.
- „ Eleven blackish sternotheres; Madagascar; reptile house.
9. Royal python; W. Africa; by Capt. Cooper; reptile house.
10. Two glaucous gulls; Greenland; by Capt. Loftus F. Jones, R.N.; gull pond.
- „ Weeper capuchin; S.E. Brazil; deposited; monkey house.
- „ Golden-crowned conure; S.E. Brazil; deposited; parrot house.
11. Syrian Fennee fox; Persia; by Mr. E. Sandys Dawes; small mammal house.
13. Reeves's muntjac (male); born in the Gardens; gazelle sheds.
- „ Vinaceous turtle dove and a bronzewinged pigeon; bred in the Gardens; western aviary.
- „ Gertualian ground dove; Morocco; small mammal house.
- „ Wood pigeon; Europe; by Mr. Cheesman; western aviary.
14. Common raccoon; N. America; by Mr. W. Binder; raccoons' cages.
- „ Two domestic sheep (male and female); Aden; by Mr. T. Gray; top yard.
- „ Egyptian gazelle (female); Egypt; deposited; gazelle sheds.
- „ Green monkey (male); W. Africa; deposited; monkey house.
- „ Two yellow wagtails, a tree pipit, and a meadow pipit; Europe; by Messrs. Swaysland & Son; western aviary.
15. Common sheldrake (female); Europe; by Messrs. Swaysland & Son; western aviary.
- „ Natterjack toad; Ireland; by Mr. F. Buckland; reptile house.
16. Goffin's cockatoo; Queensland; by Mrs. Barton; parrot house.
- „ Six Houbara bustards; North Africa; eastern aviary.
- „ Many-coloured parrakeet; Australia; received in exchange; parrot house.
17. Sulphury tyrant, Brazilian hangnest, two red-rumped hangnests, and three bluebearded jays; South America; received from Southampton; parrot house.
18. Wapiti deer (female); born in the Gardens; deer sheds.
- „ Macaque monkey (female); India; by Mrs. Kent; monkey house.
- „ Rose-crested cockatoo; Moluccas; by Mrs. Sydenham; parrot house.

*Ornithological Notes from North Lincolnshire.*

By JOHN CORDEAUX, Esq.

(Continued from S. S. 4670.)

## OCTOBER, 1875.

*Jack Snipe.*—October 5th. First seen; a single bird.*Great Snipe.*—One was shot in the parish of Ravendale, on the wolds, rising from turnips, about the middle of September.*Shoveler.*—October 8th. I found the stomach of a young male shoveler, skinned this evening, crammed with small seeds exactly resembling trefoil, also many small angular stones.*Redthroated Diver.*—October 12th. A very fine male, having a perfect cochineal neck-patch, was shot off the Spurn coast by Edward Wheldrake, fisherman, of that place. Young birds of the year have not been uncommon on the coast this autumn.*Goldcrested Wren.*—October 16th to 24th. Very considerable numbers arrived in flocks between these dates. I first observed them on the 16th. On the night of the 23rd we had a gale from E. and S.E., with much heavy rain: early the next morning (Sunday) a man who lives in a cottage near our sea embankment, on leaving the house, found his garden swarming, as he described them, with "tiny birds like wrens, having a yellow patch on the top of the head." There were as many as seven or eight on a single plant, and so tame that he several times all but succeeded in catching them. They all left again before the evening.*Woodcock.*—The first flight arrived on the morning of the 15th. The previous night we had a very heavy gale from N. to N.E. and E., with heavy rain. Others came in during the following fortnight—notably on the night of Friday, the 29th. I know one well-known sportsman, a crack shot, living near the coast, who succeeded in bagging thirteen couples in one day.*Hooded Crow.*—The main body arrived between the 15th and 19th.*Golden Plover.*—October 23rd. First flight seen.*Waterhen.*—October 23rd. Very heavy rains and floods on the 22nd and 23rd. This afternoon I put up quite a large flock of moorhens, certainly not less than thirty, I should say. They flew in a tolerably compact body into a group of "blow-wells" in the

low grounds near our small stream. I do not recollect at any time ever having seen more than a pair in this situation before. These I fancy must have been a migratory flock, particularly as on going down to the same place two days later I could not find any, either there or anywhere in the vicinity.

*Fieldfare*.—October 28th. First fieldfare seen; have arrived in very large flocks.

*Redlegged Partridge*.—October 28th. One was shot on the neighbouring farm to mine on this date; another, I am told, on the same farm last season. These are the only two I have known shot in this immediate neighbourhood.

*Buzzard*.—The strong S. and S.E. gales must have driven several buzzards on our east coast. I have heard of "big hawks" in several localities, and have myself seen three—all buzzards. When shooting, on the 3rd of November, over some young spruce plantations on the side of a glen known as "Deep-dales," near Croxby Lake, on the wolds, I saw a buzzard sailing up the centre of the valley, baited by half-a-dozen carrion crows. He was perhaps about one hundred and fifty yards from me, and rather below the level of the eye, so I had a very good view of all the upper surface. The upper tail-coverts and the proximal half of the tail were white, the distal half brown. I have no doubt it was a roughlegged buzzard. The flight was slow, but very easy and graceful.

*Peregrine*.—On the same day, and in the same locality, I saw a peregrine.

The month has been exceedingly tempestuous, with prevailing winds from N., N.E., and E. and S.E. The rainfall on the 19th was 1.15 inch; for the month up to the 23rd, 3.47 inches. Much rain and high winds so early in the season are generally indicative of a mild open winter.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,  
November 6, 1875.

*Erratum*.—In my notes in the 'Zoologist' for November, page 4670, seventeenth line, for these birds read then birds.—J. C.

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*On the Migration of Birds.* By Capt. HENRY MADFIELD.

PROFESSOR NEWTON, in his interesting paper read at a meeting of the British Association (Zool. S. S. 4637) says, "We can only guess at the cause of migration, and not even guess at the faculty by which it is performed." But many birds, we know, are compelled at the approach of winter to migrate south or they would perish—some of cold, others for want of food. The spring northern migration, though seemingly not so imperative, is nevertheless a necessity for some species, both for suitable breeding-stations and food.

As to Dr. von Middendorff's theory that "birds know where the magnetic pole is situated, and steer their course accordingly," I shall not attempt to controvert it, there being more on "earth than is dreamt of in our philosophy;" but it may be as well to consider whether birds do not "steer" their course by other means. Being so sensitively and delicately organized, any change of temperature would be readily felt and acted on, so that no great deviation from the true course—that is, north or south—could be made. That birds are also endowed with a mysterious instinctive faculty, allied to reason, there can be no doubt, but how to define it we know not, and never shall know.

Then there is Herr Palmen's somewhat less wonderful theory that "experience" is the key—flocks of migrants being always led by birds which have made the journey before. But how, may I ask, does this Finnish naturalist account for the migratory flight of the first or original flock? How was that "steered," or rather piloted?

Another writer supposes that "want of light" determines the autumnal migration of the swallow and martin; but that cannot be, seeing that many of both species remain for weeks after the main body has left. I have paid some attention to the migration of the Hirundines, but, few breeding in this neighbourhood, I would suggest to ornithologists more favourably situated, that they mark young birds; we might then hear of them, and know more of their migratory course. Though we have still much to learn, I cannot but think we have made *some* progress "since Gilbert White's time."

I find, on referring to the number of the 'Zoologist' for January, 1874 (S. S. 3834), some remarks by Mr. Stephen Clogg on the late

stay of martins and swallows, which escaped my notice at the time. Mr. Clogg inquires "whether their late stay is dependent on the wind, having observed about a dozen martins up to the 21st of November, the wind being in the east?" They were doubtless late broods; but it was not the "cold wind," as he seems to suppose, that had kept them from migrating, but want of power in these young birds to take so long a flight. Mr. Clogg had been informed, by a person "taking interest in the subject, that swallows do not migrate when the wind is easterly." Some thirty years' experience has taught me the reverse (which a reference to my published notes will show); besides it stands to reason that so long as westerly and south-westerly winds prevail in the early days of October, there is no necessity for a move, their insect-food being still abundant and weather mild. But should the wind veer to the east or north-east a general move will be the result, and countless numbers of both swallows and martins are then seen from early dawn to sun-down winging their way eastward.

As to swallows or martins being wind-bound, knowing as we do their power of wing and velocity of flight, I cannot entertain the idea, though I do not say they could make way against a storm. What their rate of speed may be when flying against a stiff breeze I have never calculated to a nicety, but it cannot be less than a mile a minute, at which rate they would, at many points of our coast, cross the channel in less than an hour.

Mr. E. H. Rodd, in his note on the "Spring Migration of British Warblers," in the 'Zoologist' for June, 1874 (S. S. 4032), inquires how it is that "these birds are singing in Italy, and what business they have there at this season (April), as it is generally understood that at the vernal migration the warblers are drawn from the south to the northern countries to breed." But Mr. Rodd can hardly suppose or expect that we northerners are to have all the nightingales, blackcaps, garden warblers and willow wrens to ourselves; the wonder is that so many reach our shores, seeing that, of a cold spring, many of those that do come suffer greatly, and are not unfrequently picked up either dead or dying, and even at the best have but a short season for nesting and rearing their young. Mr. Rodd's second question is, "whether these birds (songsters) in Italy in the spring are migrants from a lower range of latitude?" Undoubtedly, or they would be found there at all seasons.

Though we had but few swallows and martins during the summer, both species have been abundant this autumn, particularly the former. On the 17th of October many swallows were to be seen hawking in the streets, regardless of the foot-passengers, skimming to and fro, wellnigh within reach; the day was mild and showery, and their insect-food seemingly abundant. On the 19th and 20th (the weather still wet and warm, thermometer 60°) numbers of swallows were observed wheeling round and about the town, flying low, as is their wont in rainy and windy weather.

November 7th (thermometer 51°). About twenty swallows were seen hawking round the Cottage Hospital at St. Lawrence, mostly, if not all, birds of the season; tails but slightly forked.

That swallows and martins remain with us later than they do on the opposite coast, I had pretty good proof when in Brittany in 1873, not having observed one in November, though unusually mild.

The willow wren and chiffchaff were observed till the beginning of October. Few visited us this season; some years the gardens swarm with them, more particularly at the autumnal migration.

I have heard of a flock of redwings having been seen early in October.

I am informed by Mr. Smith, the Newport taxidermist, that he had four gray phalaropes sent him during the second week in October.

HENRY HADFIELD.

Ventnor, Isle of Wight, November 8, 1875.

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*Marsh Warbler* (*Acrocephalus palustris*) in *Somersetshire*.

By CECIL SMITH, Esq., F.L.S.

A SHORT time ago, with my friend Mr. Howard Saunders, I was looking through a collection of local birds belonging to Dr. Woodforde, which I had not previously seen, when, amongst other things, we saw two cases containing four supposed reed warblers (*Acrocephalus streperus*), which Mr. Saunders thought might really be marsh warblers, though, for want of other skins for comparison, he could not be quite certain: he therefore promised to send me some skins of both birds—*A. palustris* and *A. streperus*. Armed with these and two eggs of *A. palustris*, I again went over to examine

Dr. Woodforde's birds, and was also shown a pair of real reed warblers, which we had not seen before.

The birds in question, Dr. Woodforde told me, had been first noticed by a Taunton birdcatcher, who told him that he had been struck by their being in a place distant from water, and in which he had not expected to find reed warblers, which bird he knew well. Dr. Woodforde accordingly obtained the four birds, the nest, and (I think) three eggs, but unfortunately had only one of them remaining.

On comparing these birds with the skins sent to me by Mr. Saunders, there was no difficulty in identifying them as *A. palustris*, and there was equally little difficulty in identifying two others, which Dr. Woodforde then showed me, as *A. streperus*; these latter two birds we had not seen on our first visit, or probably the matter would have been cleared up at once.

The nest, which was not so deep as that of the reed warbler usually is, was not entirely supported (as is usually the case with that of the reed warbler), by being tied on to the reeds at the sides, the bottom not resting on anything (see the vignette in Yarrell), but was partly supported at the bottom, and only tied on to one twig—I think a bramble.

The egg agreed very nearly with one of *A. palustris* sent to me by Mr. Saunders, both of which are white, or very nearly so, with dark purple and green spots; they were rather lesser-whitethroat-looking eggs—not at all agreeing with the ordinary eggs of the reed warbler: one of the eggs, however, of *A. palustris* approaches much nearer to the reed warbler's eggs. Besides the general colour of the exterior of the eggs, there appears to me (on comparing these two with some real reed warbler's eggs in my collection) one material difference—the interior of the reed warbler's eggs is decidedly white, while that of the marsh warbler has a greenish tinge, and that even though the ground of the outer part is, as I have said, nearly or quite white. I could not examine the egg in the case with Dr. Woodforde's birds so as to see the colour of the inside, as it was fastened in the case.

Subsequently, on looking through the birds in the Museum at Taunton, I found one more example of *A. palustris*, which had been lately deposited there by Mr. Sanford, at whose place (Minehead, near Wellington) it had been killed.

As these two birds (the reed and the marsh warbler) so closely

resemble each other, I may be allowed perhaps to point out the distinctions I have relied on; and I must confess I have not been able to find anything except the general colour of the plumage and of the legs. This general colour, however, seems to me sufficient to enable anyone to distinguish the skins of the reed warbler from those of the marsh warbler when placed in a row.

The whole of the upper surface of the marsh warbler (*A. palustris*) has a decided tinge of yellowish green, brightest and most easily to be distinguished on the rump: this tinge pervades even the quills and the tail, being most discernible in those parts on the margins of the feathers; therefore the birds killed before the autumn moult, when the margins of the feathers are much worn, seem to be the most difficult to separate. The under parts, except just in the centre (where they are white), are of a pale sulphur- or primrose-yellow; the legs are pale.

The upper surface of the reed warbler (*A. streperus*) is brown, with a decided reddish tinge, as in *A. palustris*, brightest and most distinguishable on the rump; the same tone of colour pervades both the wings and the tail, being most discernible on the margins of the feathers; the under parts, except just in the centre (where they are white), are of a buff- or fawn-colour, the same sort of reddish tinge prevailing on these parts as well as on the upper parts; the legs are darkish lead-colour, though in some dried specimens the colour of the legs does not differ so very much; but, on the whole, it will be found that the birds with the greenish tinge have the legs pale, while those with the reddish hue have them dark.

These distinctions seem to me quite as discernible in the British as in the foreign specimens; indeed the difference between Dr. Woodforde's reed warblers and his marsh warblers was greater than in any of the skins sent me by Mr. Saunders.

I confess I cannot see some of the distinctions pointed out by Mr. Harting in Professor Newton's edition of Yarrell—namely, the difference in the streak over the eye and in the relative length of the quills. This last seems to depend much on moult.

It is not without considerable hesitation that I claim *A. palustris* as a Somersetshire bird and as distinct from *A. streperus*, as I am well aware that Professor Newton does not see his way to admit it as a British bird, not being satisfied that the British-killed specimens which have been submitted to him can clearly be identified as *A. palustris*; and that Mr. Gould, although he admits *A. palustris*

in his work on 'British Birds,' says that he does so with considerable reluctance. I must apologise for taking up so much space; but, though the subject has been mooted before by Lord Clermont, Mr. Mitford, and others (see 'Zoologist' for 1864 and 1865), I do not find that any particular notice was taken or explanation given of the distinctions of the species, but having gone through a series of fifteen skins I find the difference of colour above mentioned constant at various ages and various stages of plumage.

I must add that it is due to Mr. Saunders to say that he first detected the birds in Dr. Woodforde's collection and called my attention to them.

CECIL SMITH.

Lydeard House, November, 1875.

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*Ornithological Notes from Somersetshire and Devonshire.*

By JOHN GATCOMBE, Esq.

(Continued from S. S. 4672).

OCTOBER, 1875.

1st. The sedge warblers have not yet left us: I saw some to-day in the neighbourhood of Moorland.

5th. The variety of missel thrush mentioned in my last notes was, I am sorry to say, killed this morning by a young farmer. On examination, I found it to be indeed a beautiful specimen, having the whole plumage of a delicate buff, with the exception of the exposed parts of the quill-feathers in the wings and tail being of a grayish white. The spots of the breast and lower parts are plainly visible, and a shade darker than the rest of the plumage; bill, legs, feet and claws yellowish; eyes hazel. I bought the bird to prevent its being destroyed or lost, and have it now preserved in my possession.

8th. Observed several small straggling parties of swallows during the day, flying in a south-westerly direction. I may here remark that in September I often saw swallows and martins alight on the sandy mud-banks of the River Parret, moving about, pecking at, and apparently picking up something, but whether insects or the fine gritty substance of the bank itself I could never quite make out, even with a good glass. I believe swallows are not generally supposed to require sand or fine gravel to aid digestion.

October 14th. Before leaving Moorland for North Devon, I remarked a few swallows and martins still flying about after food, but the great body seem to have left.

15th. Found ravens plentiful among the magnificent cliffs at Ilfracombe, and on one occasion saw a flock of seven or eight flying by the celebrated Tors Walks, where a pair or two may be daily seen. It is very curious to watch the singular evolutions performed by a pair of ravens when disturbed in their haunts, even at this time of the year, but more especially during the nesting-season. At such times they will rise croaking above the intruder's head, pass and repass, rising, falling and tumbling almost over in the air, as if hit, and, disappearing behind a projecting crag, will re-appear from quite a different quarter over the brow of the cliff, and continue their manœuvres until the invader has left the spot. Kestrels, too, were numerous in the same locality, and rock larks abundant along the coast. Among the sea birds I observed some herring gulls, two gannets and a few shags. Several phalaropes, I was told, had also been seen during a recent gale. At a poulterer's shop in Ilfracombe there was a rather curious variety of the teal, which had a pure white ring round its neck, very similar to that on the neck of the common wild mallard.

22nd. Walked with a friend to the top of the Great Hangman, a lofty bluff or headland rising a thousand feet above the sea, on the coast, about seven miles from Ilfracombe. On our gaining the summit of this great hill I at once caught sight of a dotterel (*Charadrius morinellus*), which almost immediately took wing, uttering a rather low or feeble note, sounding to me something between that of the purre and ringed plover. It did not, however, fly far, but alighted again within a short distance, giving me a good opportunity of examining it with my glass, noting its actions, and making several sketches of its attitudes. It afterwards became very tame, moving slowly about, now and then stopping suddenly to look round, listen, or pick up something, and finally allowing my approach to within fifteen yards. It was altogether prettily marked, and the white band above the eye was very conspicuous. The top of Great Hangman has a rather wild aspect, reminding one of Dartmoor, being covered with stones, heath and low gorse, and is, I should think, just the place where dotterels might be found on their first arrival in spring. The view from it is truly magnificent; but the sight of the dotterel alone (the first I had ever met with in

a wild state) far more than repaid me for a rather hot walk of, altogether, full twenty miles.

October 25th. Paid a visit to Braunton Burrows and the beautiful and extensive range of sands stretching far away towards Northam and Westward Ho. Near the sea was settled a large flock of about two hundred oystercatchers standing close together in a compact body and horizontal position, with their necks contracted and every head pointed against the wind, which was blowing rather fresh at the time. From a distance they appeared like a dense black mass, but formed a beautiful object through a glass, now and then moving altogether for a few yards as the tide approached—the simultaneous action of the four hundred pinkish twinkling legs produced a very pretty effect. They allowed us to approach within about a hundred and fifty yards of them, and then got up, displaying their beautiful pied plumage to great advantage, but settled again about a quarter of a mile off. I was much pleased to see a small flock of sanderlings, too, on the sands, feeding close by the margin of the waves, and from their light colour I think they must have already assumed the perfect winter dress; but the swiftness they displayed when coursing along the sands was truly marvellous—at times almost appearing to fly. On our way to the sands I observed two or three buzzards circling over the hills and brakes near the coast, and a flock of seven Cornish choughs, which flew past us within two hundred yards: they appeared to come from the direction of Morthoe, where they are said to be not uncommon. When traversing the sand-hills of the Burrows a short-eared owl started from some long grass almost under my feet, flying off in a buoyant but wavering manner, something like a gull; but, after making a kind of half circle, alighted again on a bank about sixty yards off, where it stood bolt upright, staring at me with its beautiful yellow eyes until I ventured an approach, when it flew off again, and I did not further molest it, having satisfied myself with a good look at it through the glass, and was much astonished to see how wonderfully its plumage assimilated with surrounding objects; indeed, without the aid of a glass, I could scarcely discern it at all, even at so short a distance.

.27th. There were many woodcocks in the poulterer's shops at Ilfracombe.

*Osprey*.—There appears to have been quite a flight of ospreys on the Devonshire coast during the early part of the present

autumn. Mr. Rowe, of Barnstaple, had a fine specimen sent to him for preservation, which was killed in that neighbourhood, and he told me that another had been seen. On my arrival at Plymouth I saw a beautiful one at the shop of Mr. Peacock, animal preserver, which was obtained on the 26th of September, at Millbrook, just opposite Devonport, and close to Mount Edgcombe. The person who shot it has since informed him that there were two more in company with it, which remained in the locality for ten or twelve days after the first had been killed, and that every one who possessed a gun in the neighbourhood did his utmost to get a shot at them, but (I am happy to add) without success. Another was observed on the River Avon, not many miles from Plymouth.

*Hobby, Shorteared Owl and Gray Phalarope.*—Mr. Peacock has lately received two hobbies for preservation and a shorteared owl, which latter was caught on board a ship three hundred miles from the nearest land. Some gray phalaropes, killed during the October gales, were likewise brought to him.

*Peregrine Falcon and Kentish Plover.*—At the shop of Mr. Luckraft, in Stonehouse, I saw a magnificent peregrine falcon, which had been recently obtained near Saltash, on the Tamar. I was also shown a very pretty immature specimen of the Kentish plover, a species rarely met with in Devon or Cornwall. The gentleman who shot it said that it was flying at the "tail end" of a flock of other small waders, thereby attracting his notice. I have never heard but of two others having been seen in the neighbourhood of Plymouth, one of which was killed by a friend of mine on the Plymouth Breakwater, and was identified by me.

*American Bittern.*—Since my return from North Devon I have heard from my friend the Rev. W. S. Hore, of Barnstaple, that Mr. Rowe had received an American bittern, in the flesh, I believe killed in the neighbourhood of Ilfracombe.

*Greenshank and Purple Sandpiper.*—A greenshank and several purple sandpipers have lately been brought to the Plymouth bird-stuffers—the latter species being rather plentiful on our rocky coasts just now.

*Late Martin.*—The last member of the swallow family seen by me this season was a solitary martin flying round the Railway Station at Braunton on the 25th of October.

JOHN GATCOMBE.

**A Monstrosity.**—Mr. Smith, taxidermist, of Newport, has lately had a monstrosity to stuff—"A lamb with two heads and four ears, two tails and eight legs; everything *perfect* (?) excepting one face, which had but one eye, and that in the centre of the forehead."—*II. Hadfield; November 8, 1875.*

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**Rare Birds in North Devon.**—The beginning of September an osprey was shot on the banks of the Taw, and another was seen about the same date. Towards the end of October a fine example of the American bittern was killed by Mr. Richards while shooting on some high moor ground near Parracombe: I have seen this bird, which I believe is to be presented to Earl Fortescue, as it was shot upon his lordship's ground: it is a young bird of the year. A very fine specimen of the roughlegged buzzard was recently shot on Exmoor by one of the keepers of Mr. F. Knight, M.P.: it is a very light-coloured bird. The roughlegged buzzard is a very rare visitor so far west as Devon and Somerset. Added to these rare captures I have to record the occurrence of a rosecoloured pastor, which was obtained in the neighbourhood of Bideford the latter end of October. In North Devon, as in most parts of the kingdom, there is a great extent of flooded land, owing to the continuous heavy rains of the present autumn, and this seems to afford a rare feeding-ground to many kinds of gull. The drowned worms must afford them a rich banquet. In a flooded meadow near Bideford I noticed a single large tern as late as the 11th of November, in company with numerous kittiwakes and brownheaded gulls, and saw another tern two days later beating along the Torridge.—*Murray A. Mathew; Bishop's Lydeard, November 14, 1875.*

**The Value of Natural-History Specimens.**—The relative value which naturalists of the last generation put on certain birds seems absurd enough to us in the present advanced state of Science. I see from a copy of Mr. Bullock's sale catalogue, in the possession of Prof. Newton, annotated in MS. by Mr. George Caley, that the snowy owl obtained in Shetland by Dr. Edmondston, and by him sent to Mr. Bullock, fetched the extraordinary sum of £26 5s., while a great auk's egg (lot 123), on the twenty-first day of the sale, went for twelve shillings. Dr. Leach bought both, but this large sale seems to have attracted a great many naturalists, both English and foreign. It was held at the Egyptian Hall, in Piccadilly, in the spring of 1819.—*J. H. Gurney, jun.; Northrepps Hall, Norwich.*

**Bird's Nest in the Fleece of a living Sheep.**—The following is an extract from the Plymouth journal, the 'Patriot,' of June 27th, 1832, copied from J. D. Salmon's diary, which is in the Norwich Museum:—"Friday, as four men were sheep-shearing at Radford, they discovered a bird's nest completely embedded in the wool on the back of one of the sheep. Not the least doubt is entertained of its having been built there; and what is still more

extraordinary, the nest had every appearance of the young birds having been hatched and fledged in it. The men supposed it to be a linnet's nest."—*J. H. Gurney, jun.*

**New British Bird.**—*Lanius meridionalis* (Bree's 'Birds of Europe,' vol. ii. 2nd ed., and vol. i., 1st ed.). A specimen of this bird, which is new to our British fauna, was shot last week a few miles from this town. It is a male, and had a shrew in its stomach. It must not be confounded with the bird so called by Yarrell, *Lanius excubitor*, which is more or less frequently a well-known visitor to our shores. It differs in—

1st. The four upper tail-feathers are black, sometimes slightly tipped with white, as one feather is in the present case.

2nd. It has a white superciliary ridge.

3rd. The upper parts are of a darker ash-colour.

4th. The under parts are slightly but obviously tinted with vinous.

5th. It is altogether a larger bird than *L. excubitor*. In the present case it is ten inches and a quarter long.

I proposed in my 'Birds of Europe' to restrict the English name of *Excubitor* to that of the great gray shrike, retaining that of *great gray shrike* for the present bird. It is, as far as I am aware, the only specimen ever obtained in these islands.—*C. R. Bree; Colchester, November 8, 1875.*

*Erratum.*—Kindly delete the 6 in the measurement of the tarsus of the new European reed warbler noticed in the last number of the 'Zoologist' (S. S. 4689). It ought to be '85.—*C. R. B.*

**Supposed Occurrence of the Juggur Falcon** (*Falco Juggur*, Gray) **off the Coast of Yorkshire.**—At p. 597 readers of the 'Zoologist' will find a note on the occurrence of a common buzzard off Flamborough Head. It settled on the rigging of a coal-ship in the dusk of the evening, and was noosed by one of the sailors. As this statement has never been corrected, and as it is copied into at least one work, I take the liberty of saying that the hawk in question was sent up to the Zoological Gardens, and was ascertained by the best London naturalists to be a Juggur falcon. It was then immediately asserted that it could not have been caught off Flamborough, and I have heard that these doubts were much confirmed on enquiry, though the original notice is so circumstantial that one wonders how any blunder could have arisen. Its legs are described to have been "greenish flesh-colour." I see Gould makes them green in the young ('Birds of Asia,' pt. 1). My father says the Juggur is much used in India for falconry. Can it have been brought over to this country and escaped?—*J. H. Gurney, jun.*

**The Redbacked Shrike a Butcher.**—Although, as Mr. J. H. Gurney, jun., says in his note on this bird (Zool. S. S. 4691), perhaps the habit of the redbacked shrike of "butchering" its prey (*i. e.* bird-prey) is "too well established now to require any further instances,"—yet I think it is always

satisfactory to add instances, if possible. I will only, however, mention that I was surprised to see the passage in the new edition of Yarrell; and I have myself found thorn-trees and thorn-bushes in hedgerows in Norfolk, Suffolk, Kent, and other counties well "decorated" with (among several others) the following species, *viz.*, great titmouse, blue tit, longtailed tit (all a very common prey), robin and hedgesparrow; once a thrush (young); twice old blackbirds, and once young partridges! in addition to the usual beetles, cockchafers, &c.—*Alexander Clark-Kennedy; 22, Melville Street, Edinburgh, November 2, 1875.*

**Migration of Redwings.**—That large numbers of redwings were migrating during the pitchy dark nights between the 23rd and 28th of October I have little doubt. When walking home from Bray between 10 and 11 p. m. on the latter date I heard their shrill cries aloft very frequently. That night was one of inky blackness, and the birds seemed to be attracted by the light of the numerous gas-lamps, as their cries diminished in frequency when I got further into the country. A worse night for an aerial journey could scarcely be selected; it was moonless and miserable, yet hardly worse than others during the week, on one of which I heard the cry of the redwings at Fassaroe, and believe I should have heard them on others had I been watching. Not *seeing* the birds, I could not say in what direction they were going. When I heard them at Bray they appeared to be flying in a bewildered manner over the town, confused doubtless by the glare of the gaslights. Turning to the "Daily Weather Charts," we see that the prevalent winds over Great Britain were E. and S.E.,—that on one or two days the wind was northerly over Denmark; so presuming that the birds came from Scandinavia by land, they had tolerably favourable breezes, but if direct across the North Sea then side winds. The barometer was high over Northern Europe during the week.—*Richard M. Barrington; Fassaroe, Bray, Co. Wicklow, November 12, 1875.*

**Does the male Blackcap have a Black Head during the Winter?**—In Professor Newton's article on this species in his new edition of Yarrell's 'British Birds' (vol. i. p. 422), the following passage occurs:—"It would, singularly enough, seem that in winter some, if not all, of the males lose their black caps, and have their heads coloured like those of the females." Mr. Harting, in his newly published work 'Our Summer Migrants' (pp. 55—58), also refers to the same subject. Last year I wintered in Corsica, arriving there in the end of September, but it was not until December 24th that I noticed any blackcaps (*Curruea atricapilla*). On that day I shot a male; on the next day, at the same place, a female; on the 29th a male and female; and on the 1st of February another pair. (It is noteworthy that at that time of year these birds were also found in pairs.) Now all these males had *pure black heads*, as in the summer in this country. This evidence is of course by no means conclusive, especially as I was unable

to obtain specimens in October and November; but I think enough has been said to show that it would be very interesting if some of your other correspondents, who have wintered in the same countries as the blackcap, would let us know their experience as to the retention or not of the black head.—*C. Bygrave Wharton; Kingsley, Staffordshire, October 30, 1875.*

**Waxwings without Wax.**—I have a waxwing with no wax tips. I always considered this a curious bird, and I have only just now noticed the record of a similar one having been killed in Norfolk (Zool. 3560). The authors of 'North American Birds' say (vol. i., p. 396) that it is "very common" to find such individuals in the cedar-bird and waxwing. It may be so in America, but it most assuredly is not the case with the waxwing in England.—*J. H. Gurney, jun.*

**Whitebacked Woodpecker.**—In consequence of Mr. Gurney's interesting communication to the 'Zoologist' for November respecting this bird, I have searched my brother's journal for the year in question (1861), and find reason to believe that almost all the birds in the flight which visited Shetland in the autumn of that year were of the species now determined by Mr. Gould to be *P. leuconotus*, and new to the British list. The first specimen obtained was certainly *P. major*, as shown by the minutely detailed cabinet description. All the others seen or shot appear to have markedly differed from it. My impression is that my brother was thrown off his guard by getting the *P. major* first, and assumed that the birds in company were of the same species in immature plumage. There is evidence of considerable perplexity, however, the abraded condition of beak and claws, so unusual in young birds, attracting repeated attention. It was explained by the supposition that the stones, amongst which the food had to be sought, in the almost entire absence of trees, had caused more than usual wear and tear. There is an incidental note in the journal, at this place, with regard to the anatomy of the Picidæ, which I may as well transcribe on the chance of your caring to print it. We read, "In both of these birds, and indeed in all other woodpeckers which I have had an opportunity of examining, I have observed the unusual size of the cutaneous nerves, and the closeness with which the skin adheres to the body. This circumstance may perhaps be worthy of consideration in connection with the bird's well-known susceptibility to atmospheric influences." Of the two specimens thus remarked upon, one was undoubtedly *P. major*, so there is nothing of specific value here.—*Stephen H. Saxby; East Clevedon, Somerset.*

**A Turtle Dove's Nest utilised by a Wood Pigeon.**—Towards the end of the vacation (I cannot say the date) I took two turtle dove's eggs from a nest that I had found: they were rather hard sat upon. Happening to pass by the place a few days after, I noticed that somehow the nest had increased considerably in size, and on the 10th of August I heard that an egg of the ring dove or common wood pigeon had been taken from it. Is this of

common occurrence? I have never met with it before.—*R. M. Christy*; 20, Bootham, York, November 2, 1875.

**The last native Great Bustard.**—I have found an old note of my father's, which, with his permission, I send you, as it refers to the last native great bustard killed in this country. So much interest rightly centres on this noble species that a note made from the last one while in the flesh may have an historical interest for your readers:—"May, 1838. Great Bustard. A specimen of this bird was lately killed at Lexham, near Swaffham. The person who brought it to Norwich said that there were several more female bustards in the neighbourhood, but no male. On dissection the stomach was found to contain a quantity of green substance resembling clover, and an egg was found in the ovarium (for it was a female), nearly the full size, but without a shell; and from the inflamed state of that organ it was supposed that some eggs had been laid already. The weight and dimensions of the bird were as follows, *viz.* :—

Weight	-	-	-	-	-	10 lbs. 10 oz.
Length	-	-	-	-	-	2 ft. 9 in.
"	from tip to tip	-	-	-	-	5 " 10 "
"	of tibia	-	-	-	-	8 "
"	of tarsus measured to the heel	-	-	-	-	6 "

"The plumage was beautifully freckled on the back, but was much worn, so that the bird evidently had not moulted for some time. It was remarked that the down at the base of the breast-feathers was of a beautiful rose-colour."—*J. H. Gurney, jun.*

**The Roseate Down of Bustards.**—For the information of Mr. Gunn, let me inform him that the above is not so unnoticed as he supposes. In the little bustard it has been alluded to before in the 'Zoologist' (S. S. 1951), and I can add to that the case of one which was sent over from France, and skinned by me at Darlington in 1868, which had the roseate colour, and the tint does not seem to be a bit lost now. I remarked it to be strong in the houbaras which I got in Algeria, and it is also quite plainly visible in my specimens of Macqueen's bustard and the great bustard. Probably the first writer who took cognizance of it was George Graves (Brit. Orn. iii.).—*Id.*

**Pratincole** (*Glareola pratincola* (Linn.)).—Mr. Duff, of Bishop's Auckland (Zool. S. S. 2771) communicates the occurrence of a collared pratincole at Bedlington (Northumberland). This bird is in my collection, and as there was a mistake about the locality, I think it right to point out that it was really shot at Bridlington (Yorkshire). *Vide* Hancock's 'Catalogue of the Birds of Northumberland and Durham,' p. 96, foot-note.—*Id.*

**Bloch's Gurnard in Galloway.**—I meant to have recorded ere this that the gurnards of two or three species were very unusually common during

the past summer and early autumn, on both the Wigtonshire and Kircudbrightshire coasts. One day in the month of August I got a Bloch's gurnard, more the next day, and still more on the following day. This species has hitherto been very uncommon on the southern coasts (as far as my own knowledge extends) of Scotland; but rare fish of many sorts came to hand during the past season, including a very fine shark cast up near Whithorn, Wigtonshire, but which unluckily I did not see at the time.—*Alexander Clark-Kennedy; November 2, 1875.*

**Sun-fish in Fleet Bay, Galloway.**—On a very hot day early, during the month of June last, the fisherman belonging to the house where I was then staying (Cally, near Gatehouse-of-Fleet) found a very fine sun-fish in the salmon-nets at the entrance of Fleet Bay: he kept it until it was offensive without showing it to anyone, and then threw it away; he was, however, a good ichthyologist, and had only once before caught a sunfish in thirty years' experience as a fisherman on various coasts of Scotland.—*Id.*

**Sun-fish at Overstrand in Norfolk.**—On the 30th of October a sun-fish answering to Yarrell's description of the short sun-fish was observed at Overstrand, floundering about in the surf. It was such a big one (measuring fifty-two inches in length—dorsal fin nineteen inches and a half) that it was only with the greatest difficulty the fishermen got it ashore, when it was found to have grated its mouth so much that its lips were quite rubbed away.—*J. H. Gurney, jun.*

**Large Sun-fish off the North of Scotland.**—During the first week in November some fishermen brought into Edinburgh a specimen of the short sun-fish, estimated to weigh twelve cwt. The measurements are—length six feet four inches; depth of body three feet six inches; thickness of body one foot six inches. It was captured off the extreme North of Scotland.—'Times.'

**Tunny on the Somersetshire Coast.**—A fish of extraordinary size has just been taken by Messrs. Stone, fishermen, at Steart Point, on the Somersetshire coast, having been left on the mud by the receding tide, and when found it was nearly dead. The fish is a specimen of the tunny; its dimensions are—seven feet six inches in length; five feet in circumference; and two feet nine inches across the tail; its weight is about three cwt. The tunny is generally found in the Mediterranean, and, according to the late Mr. Couch, appears on the Cornish coast in the summer and autumn, but is not often taken, because it does not often swallow a bait, or at least the fishermen use no bait that is acceptable to it, and its size and strength seldom suffer it to become entangled in their nets. It feeds on pilchards, herrings, and perhaps most other small fishes.—'Western Morning News' (*Plymouth newspaper*) of November 11, 1875. [Communicated by W. Pengelly, Esq.]

**The Maigre off Yarmouth.**—Those of your readers who are interested in Ichthyology will be pleased to hear that they have an opportunity, through

the courtesy of Mr. Charles, fishmonger, Arabella Row, Pimlico, of inspecting a fine specimen of the maigre (*Sciæna Aquila*). The fish is four feet nine inches long, and weighs seventy-five pounds. It was caught a few miles off Great Yarmouth, and is in fine condition. The maigre has been very carefully described by Yarrell (vol. ii. p. 104, ed. 1859) and by other writers. It is a Mediterranean fish, and is very rarely found on the English coast. A specimen, of which Mr. Charles became the possessor, was caught in the North Sea in 1873; but the fish is so seldom met with off the English coast that it will certainly be interesting to Londoners to know that they may have the rare opportunity of this day inspecting a handsome specimen.—*Mr. Tregellas, of Brompton, in the 'Times' of November 1, 1875.*

[The fish is so rare in English waters that it has never received an English name. In France it is more abundant, and seems to have been a favourite article of food both in France and Italy from very remote times. Cuvier gives it several French names, and also informs us it was the *umbrina* of the Romans. He says it is a good fish, and attains a great size, six feet or more in length. It is remarkable for the curious appendages which fringe both sides of the swim-bladder; these are very numerous and much divided, and one feels at a loss to conceive their use. It was in great request among Roman epicures, and Rondeletius calls it a royal fish. Indeed the maigre enjoys quite a classical celebrity, and we learn from Yarrell that in Rome it used to be sold in pieces, and that the Roman fishermen were in the habit of presenting the head, which was considered the finest part, as a sort of tribute to the three local magistrates who acted for the time as conservators of the city. The following anecdote is extracted from Yarrell:—“Paulus Jovius relates a curious history of a head of one of these fishes presented as usual to the conservators in the reign of Pope Sextus X.; given by them to the Pope's nephew; by him to one of the cardinals; from whom it passed as a noble donation to his banker, to whom he was deeply indebted; and from the banker to his courtesan. It was followed through all its migrations by a parasite, whose industry was rewarded by at length partaking of the feast.” This story, says Yarrell, “forms much of the under-plot of Beaumont and Fletcher's ‘Woman-Hater,’ where, as the condition of his becoming a sharer in the exquisite morsel, the parasite is made to marry the courtesan with whom the head finally rested. The ear-bones of the maigre, according to Belem, were formerly supposed to possess medicinal virtues. They were called colick-stones, and were worn on the neck, mounted in gold, to secure the possessor against this painful malady: in order that they might be quite effectual it was said the wearer must have received them as a gift: if they had been purchased they had neither preventive nor curative power.”—*Edward Newman.*]

**Large Roach in the Lea.**—I have great pleasure to inform you that a youth residing at Hoddesdon, while angling in the free water of the Lea at

St. Margaret's, on Saturday last, succeeded in capturing a fine roach, weighing three pounds one ounce and a half. The fish was brought to London by Mr. J. Burnham, and shown at the Club-room of the Hoxton Brothers and also the Walworth Waltonians on Saturday evening. It has been sent for preservation.—*R. Chearney; Secretary, Hoxton Brothers Angling Society, November 10, 1875.*

## Proceedings of Scientific Societies.

### ZOOLOGICAL SOCIETY OF LONDON.

November 2, 1875.—Dr. E. HAMILTON, Vice-President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the months of June, July, August and September, 1875, and called particular attention to—

1. A Cassowary, received June 7th (having been brought from New Zealand by Dr. Hector, and presented to the Society by the Right Hon. Sir James Fergusson, Bart.), and originally obtained from New Guinea by H.M.S. 'Basilisk.' It appeared to belong to the species lately described as *Casuarius Beccarii*.

2. A female Grant's Gazelle (*Gazella Granti*, Brooke) from East Africa, presented by Dr. John Kirk, June 10th. This species was previously only known from drawings.

3. A pair of Giant Tortoises (*Testudo indica*), purchased July 6th, 1875. These Tortoises were originally from Aldabra Island, in the Indian Ocean, but had been kept in captivity in the Seychelles, and had been forwarded thence by Mr. C. S. Salmon, the Chief Commissioner for the Islands, under the care of Dr. Brooks, Government Medical Officer.

4. A female Sumatran Rhinoceros (*Rhinoceros sumatrensis*), deposited July 14th, by Mr. C. Jamrach.

5. A young female Tora Antelope (*Alcelaphus Tora*), from Upper Nubia, purchased July 22nd, being the first example of this eastern form of the Bubal Antelope which had been received.

6. A young female Manatee (*Manatus americanus*), deposited August 6th, by Mr. R. Swain, of Demerara, and subsequently purchased for £150. It lived in apparently good health until September 7th, when it died very suddenly.

A letter was read from Signor L. M. D'Albertis, giving some account of several excursions he had made into Southern New Guinea from his present quarters in Yule Island.

A note was read from Mr. Walter G. Hoffman, describing a horn of an American Prong-horn (*Antilocapra americana*), with a double prong.

A letter was read from Captain J. Moresby, R.N., giving the exact locality of the young *Casuarium uni-appendiculatus*, presented by him to the Society in August, 1874.

A communication was read from Dr. P. von Bleeker, containing a description of a rare Central-Asiatic fish, *Elopichthys dahuricus*.

A communication was read from Mr. Edgar A. Smith, containing the description of a new species of *Carinifex*, from California, which he proposed to name *Carinifex Ponsonbii*.

A second communication from Mr. Smith contained remarks on the genus *Alaba*, with the description of a new species.

A communication was read from Mr. W. T. Blandford, correcting certain errors in the figures of *Herpestes ferrugineus* and *Ovis Bolii*, in the Society's 'Proceedings.'

Mr. P. L. Selater and Mr. O. Salvin read a paper giving the descriptions of two birds from Medellin, State of Antioquia, U.S.C., which appeared to be new to Science, and were named *Catharus phaopleurus* and *Automolus holostictus*.

Mr. A. H. Garrod read a report on the causes of death of the Indian Elephant, which died in the Gardens on July 7th, 1875.

A communication was read from the Rev. S. J. Whitmee, of Samoa, on the habits of the fishes of the genus *Antennarius*.

A communication was read from Mr. G. E. Dobson, containing a Monograph of the Bats of the genus *Taphozous*, *Geoffr.*

A communication was read from Dr. Otto Finsch, containing notes on the Pigeons of the genus *Chryscena*.

A communication was read from Dr. J. S. Bowerbank, being the fifth part of his Monograph of the Siliceo-fibrous Sponges.

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#### ENTOMOLOGICAL SOCIETY OF LONDON.

November 3, 1875.—Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

This being the first meeting of the Session, the President read the following address:—

Gentlemen,—On the opening of our new Meeting Room and Library, at the commencement of the present Session, it may be fitting to inaugurate our reunion and installation here by a few introductory remarks.

Your Council has long been conscious of the many inconveniences experienced from the former inaccessible position of our Library at Bedford

Row and its disconnection with our Meeting Room, conceded to us by favour of the Linnean Society at Burlington House. The numerous additions, moreover, to our bibliographical collection having superadded want of space to other exigencies, it has been deemed expedient to provide for these requirements in combination with some other Society capable of affording us adequate accommodation.

By the unremitting exertions of our Secretary, Mr. Grut, this has finally been accomplished; and although the advantages of bringing our Library and Meeting Room into juxtaposition in a more central site must necessarily involve a certain increase in our annual expenditure, it may not unreasonably be anticipated that the beneficial influences resulting therefrom will not be confined to those only who now muster in our ranks, but will also constitute a source of attraction to others.

Arrangements have likewise been made whereby, as already intimated in convening this meeting, our Library will be open to Members and Subscribers every Monday from two to seven o'clock, as heretofore, and on every Wednesday and Friday from two to five o'clock, instead of one day in the week.

I must also bring under your notice that we are indebted to the liberality of one of our Members for a further proof of the interest which he has on several other occasions exhibited on behalf of this Society, in providing for the entire expense of transferring our Library to this locality, as well as of the glazed book-cases and fittings requisite for its reception.

In connection with these ameliorations it has been found necessary to alter the days hitherto appointed for our meetings from Monday to Wednesday, the former day in each week being already appropriated to the meetings of the Medical Society. Our Anniversary Meeting, however, will still be held on the third Monday in January, as prescribed by the Bye-Laws, but at an earlier hour—namely, at five o'clock in the afternoon.

It has also been deemed opportune to revert to the former custom, as originally provided by the founders of this Society, of holding our meetings in the first week of each month throughout the year, instead of having certain bi-monthly meetings to obviate the difficulty arising from the closing of the rooms at Burlington House during the summer recess.

Having thus adverted to the changes made with a view to promote the interests of this Society and the convenience of its Members, I would further draw your attention to the expansion which it has been deemed advisable to give to the usual custom of introducing friends at our meetings, by throwing open our doors to all entomologists indiscriminately on this occasion as appertaining to one and the same system, actuated by corresponding impulses, and influenced by similar attractions in common with ourselves. Our policy is not one of exclusiveness, but rather that of fostering and developing new sources of emulation from within and from

without, which can best be effected by cultivating a closer intimacy with those who are fellow-labourers in the same field. To all such we tender a hearty welcome.

I would venture, in conclusion, to suggest to some few of our most esteemed Members, who are habitual absentees, the benefits which they might be enabled to confer by returning to our horizon from their remoter orbits in the realms of ether, and shedding new lustre upon our discussions.

We are each of us more or less liable to be called upon in various ways to satisfy the importunities of conventional obligations; and in looking forward to the future as fraught with propitious augury, we must rely upon the zealous co-operation of all to improve our vigour and efficiency.

We will now proceed, Gentlemen, to the ordinary business of the evening.

On the proposal of Mr. Sheppard, seconded by Mr. Bates, it was agreed that the thanks of the meeting be given to the Members of Council and the Secretary for the trouble they had taken on behalf of the Society in making arrangements for the new Meeting Room and Library, and in removing and entirely re-arranging the collection of books. Also, that the thanks of the meeting be given to the Member who had so generously aided the Society by undertaking to provide the expenses of removal to Chandos Street.

#### *Donations to the Library.*

The following donations were announced, and thanks voted to the donors:—‘Memoirs of the Boston Society of Natural History,’ vol. ii., part iii., nos. 3—5; part iv., no. 1; ‘Proceedings,’ vol. xvi., parts iii. and iv.; vol. xvii., parts i. and ii.; presented by the Society. ‘Bulletin of the Buffalo Society of Natural Sciences,’ vol. ii., no. 1; by the Society. ‘Transactions of the Linnean Society of London,’ vol. xxx. in three parts, N.S., Zoology, vol. i., part 1; by the Society. ‘Proceedings of the Scientific Meetings of the Zoological Society of London,’ 1875, parts 2 and 3; by the Society. ‘Buletino della Società Entomologica Italiana,’ t. vii., trim. 2; by the Society. ‘Transactions of the American Entomological Society,’ vol. v., sheets 1—14; by the Society. ‘Bulletin de la Société Impériale des Naturalistes de Moscou,’ 1874, no. 4; by the Society. ‘Boletin de la Academia Nacional de Ciencias exactas existente en la Universidad de Cordova,’ entrega iv.; by the Academy. ‘Horæ Societatis Entomologicæ Rossicæ,’ t. xi., no. 1; by the Society. ‘Mittheilungen der Schweizerischen Entomologischen Gesellschaft,’ vol. iv., no. 4; by the Society. ‘Annales de la Société Entomologique de Belgique,’ t. xviii., fasc. 2; by the Society. ‘Coleoptera Jekeliana,’ livr. 1 & 2; by the Author, M. H. Jekel. ‘Statistique Scientifique d’Eure-et-Loir—

Lepidoptères,' par M. Achille Guenée; by the Author. 'Recensis Orthopterorum Revue critique des Orthoptères décrits par Linné, de Geer et Thunberg,' par C. Stal; by the Author. 'Exotic Butterflies,' part 96; by the Author, W. C. Hewitson, Esq. 'Monthly Reports of the Department of Agriculture for the year 1874,' Washington, 1875. 'A Monographic Revision and Synopsis of the Trichoptera of the European Fauna,' by Robert M'Lachlan, F.L.S., part 3; by the Author. 'Rapporti tra Insetti et tra Nettarii estranuziali in alcune Piante,' di Frederigo Delpino; by Sir John Lubbock, Bart., M.P. 'Notes sur des empreintes d'Insectes fossiles découvertes dans les schistes houillers des environs de Mons,' par A. Preudhomme de Borre; by the Author. 'L'Abeille,' t. xii., 4 livr.; t. xiii., 4 livr.; by the Editor. 'The Journal of the Quekett Microscopical Club,' no. 29; by the Club. 'Proceedings of the Royal Society,' nos. 162 and 163; by the Society. 'The Canadian Entomologist,' vol. vii., nos. 6, 7 and 9; by the Editor. 'Newman's Entomologist' and 'The Zoologist,' August—November; by the Editor. 'The Naturalist,' nos. 2—4; by the Editor. 'Transactions of the Watford Natural History Society and Hertfordshire Field Club,' vol. i., part 1; by the Society. 'The Entomologist's Monthly Magazine,' August—November; by the Editors. 'Stettiner Entomologische Zeitung,' t. xxxvi., nos. 7—9; by the Society.

#### *Election of Member.*

M. Oscar Lamarche, of Liège, was balloted for and elected a Foreign Member of the Society.

#### *Exhibitions, &c.*

Mr. Boyd exhibited specimens of the mines of *Heliozela sericiella*. He had succeeded in rearing the insects, by confining them with a young oak-plant, and thus was enabled to discover their habits, of which nothing had hitherto been known. The mines were formed in the foot-stalks of the leaves.

Mr. M'Lachlan exhibited a living apterous female of a Trichopterous insect, *Enicyla* (probably *E. pusilla*, *Burm.*). He had recently bred it, with others, from cases forwarded to him by Mr. Fletcher, of Worcester, the discoverer of the insect in this country. Mr. M'Lachlan gave an account of its structure and singular habits. The perfect insects emerge in November, the males being furnished with ample wings.

Mr. Champion exhibited examples of the following Coleoptera recently captured by himself, *viz.*, *Cryptophagus populi* (varying greatly in size and colour) taken from the burrows of *Colletes Daviesana*, near Farnham, Surrey; *Orchestes semirufus*, *Gyll.*? from Woking; *Epuræa neglecta*, beaten from faggot-stacks at Darenth Wood; and *Psammodyus porcicollis* from Whitsand Bay. The last-named had been taken by Mr. S. S. Walker.

Mr. Phipson exhibited a specimen of *Catocala nupta*, which had a number of Acari attached to one of the anterior wings, instead of being attached to the body as is usually the case.

Mr. Boyd exhibited a living Myriapod from the West Indies, which was identified by Mr. Butler as a species of *Spirobolus*.

*Papers read, &c.*

The Rev. H. S. Gorham read descriptions of some new species and a new genus of Endomyeici.

Mr. Arthur G. Butler communicated "A List of the Lepidoptera referable to the Genus *Hypsa* of Walker's List, with Descriptions of some new Genera and Species."

Mr. Edward Saunders communicated a second part of his Synopsis of the British Hemiptera-Heteroptera.

Mr. Charles O. Waterhouse read descriptions of some new genera and species of Heteromorous Coleoptera (*Helopidae*), chiefly from Terra del Fuego. The specimens had been brought to this country by Mr. Charles Darwin, and had been described many years ago by Mr. Waterhouse, sen., in a paper on the classification of the Heteromera; but the portion of the paper containing the descriptions was unfortunately lost, and the insects remained unnoticed till the present time.

*New Part of 'Transactions.'*

The second Part of the 'Transactions' of the Society for 1875 was on the table.—*H. G.*

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TO CORRESPONDENTS.

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JOHN CORDEAUX: *Food of Black Woodpecker*.—"The enclosed I took from the stomach of a black woodpecker (from Norway). Can you give me any idea of the contents?"

[One larva of an Elater, a few wings of females of *Formica herculeana* and a multitude of *Formica rufa*, males, females and neuters. This last-named ant seems to constitute the chief food of the black woodpecker.—*Edward Newman.*]

J. YOUNG: *Food of Wild Duck*.—"The curious little objects contained in the crop of the wild duck are the seeds of the sea-wrack (*Zostera marina*). I have several times answered this question in former years in the 'Field' newspaper: it seems to be a favourite article of food with the Anatidæ.—*Edward Newman.*









