

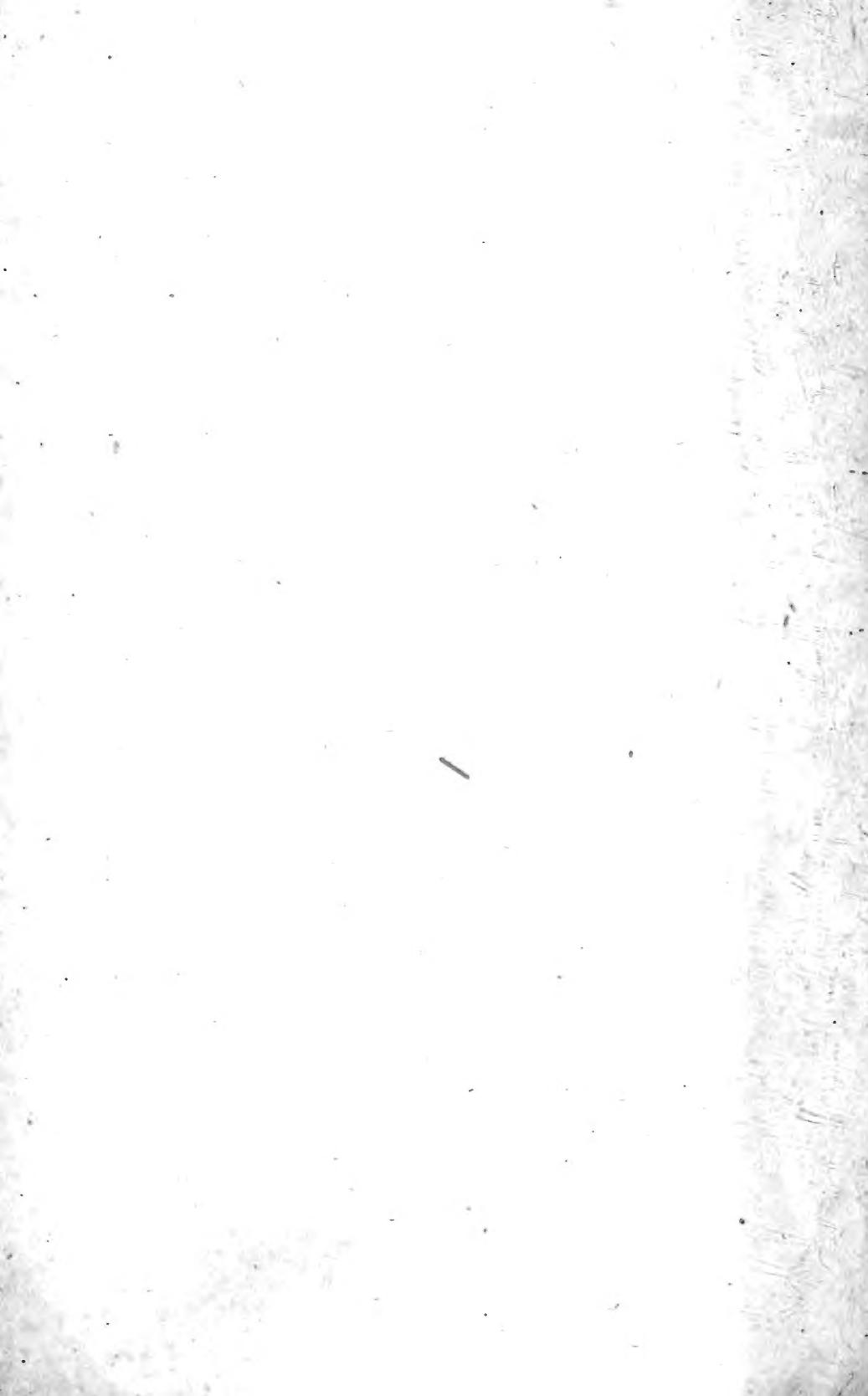
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OF

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LONDON:

JOHN VAN VOORST, PATERNOSTER ROW.

M.DCCC.LXX.

I love (and have some cause to love) the earth :
She is my Maker's creature. therefore good ;
She is my mother, for she gave me birth ;
She is my tender nurse ; she gives me food.

I love the air : her dainty sweets refresh
My drooping soul, and to new sweets invite me ;
Her shrill-mouth'd choir sustain me with their flesh,
And with their polyphonian notes delight me.

I love the sea : she is my fellow-creature,
My careful purveyor ; she provides me store.

FRANCIS QUARLES.

CONTENTS.

ALPHABETICAL LIST OF CONTRIBUTORS.

- ALSTON, EDWARD R.**
The beaver in Scotland, 2017; Kittiwake gull, 2108
- ANDERSON, ANDREW**
Cats killing squirrels, 2016
- ANDERSON, J. E.**
Bird's nest in solid wood, 2140
- BARTON, GERARD**
Noisy gathering of the house sparrow, 2306
- BATTERSBY, H. F.**
Early nest of longeared owl, Pied blackbird, 2099
- BELL, ALWIN S.**
Avocet, bittern and gray phalarope at Hastings, 2024; Reported probable occurrence of the ptarmigan in Yorkshire, 2062; Great bustards on the Yorkshire Wolds, 2063, 2103; Avocet and little auk at Rye, Little gulls on the Yorkshire coast, 2107; Wildfowl at Hastings, 2108; Sun-fish on the Dorsetshire coast, Sun-fish at Abbotsbury, 2260; Owl chased by rooks, Buff-coloured redwing, 2343; Thrasher in the West Bay, Portland, 2348
- BIRCHALL, EDWIN**
The upas tree absolved, 2412
- BLACKMORE, HENRY**
Rock doves at Salisbury, 2101
- BLAKE-KNOX, H., J.P.**
Six additions to a list of the migratory and wandering birds of the County of Dublin, 2018; Black redstart in the County of Dublin, On the plumage of the black redstart, 2019; Remarks on the abnormal plumages of the goldfinch, 2049; White's thrush at Ballymahon, County Longford, 2060; Eider duck in Dublin Bay, 2064; Varieties of birds, *Ruticilla tithys* and *R. Carii*, 2099, 2139; Ruddy shieldrake near Tralee, Co. Kerry, 2105; Puffin on the Dublin coast in February, 2107; About the kittiwake's first winter plumage, &c., 2119; Migration of swallows, Sclavonian grebe in County Dublin, 2182; Plumage of the adult male merganser, 2183; Shoveller in Dublin Bay, 2225; Merlins in Ireland, Osprey in County Kerry, 2406; American bittern at Cahir, Ireland, Esquimaux curlew in Dublin Market, 2408; Ruff in Dublin, Gray phalaropes in County Dublin, 2410
- BOND, FREDERICK, F.L.S.**
Ornithological notes from South Devon, 1983; Siberian lark at Brighton, Correction of errors, 2022; Lapland bunting near London, 2061; Little gulls in Leadenhall Market, 2066; Little gull in the City, 2108; Tawny pipit, ortolan bunting and Lapland bunting near Brighton, Second occurrence of the scarlet bullfinch near London, 2383
- BORRER, WILLIAM**
Shore lark near Weymouth, 2101
- BOYES, FREDERICK**
Common and Sandwich terns at Spurn, 2026; Notes from East Yorkshire, 2143; On the nesting of the common swift, Nesting of the quail in East Yorkshire, 2307; Little bittern in Nottinghamshire, 2308
- BOYNTON, T.**
The Pennsylvanian pipit, &c., at Bridlington, 2021
- BRADSHAW, BENJ. F.**
Habits of the coran bustard, 2407
- BRANDRETH, H. P.**
Woodcock on the 19th of March, 2141
- BREE, C. R., M.D.**
Ruticilla tithys and *R. Carii*, 2061; *Anthus ludovicianus* *vel* *Anthus rufescens*, 2100
- BRIGGS, T. R. ARCHER**
Song of the chaffinch, 2061; Something about the viper, 2145
- BROOKE, A. B.**
Natural History of Wicklow and Kerry, 2281

- BROWNE, A. M.**
Pied blackbirds, 2060; Great northern diver in the Midland Counties, 2064; Curlew sandpiper near Aberystwith, 2409; Gray phalarope in Wales, 2410
- CHALK, WILLIAM J.**
Rednecked grebe in Bedfordshire, 2064; Slavonian grebe at Taunton, 2106; Ornithological notes from Taunton, 2184; Quails at Wilden, Beds, 2384
- CLIFTON, Lord**
Supposed occurrence of the American mottled owl at Cobham, Kent, 2138, 2343
- CORDEAUX, JOHN**
Ornithological notes from North Lincolnshire, 1976, 2053, 2077, 2153, 2285, 2335, 2389; Common and Sandwich terns at Spurn, 2065; Extracts (Ornithological) from the Log of the "Coralie," R. Y. Y. C., 2214; Common wren at Spurn Point, 2407
- CORNISH, THOMAS, F. L. S.**
Pilchards in Mount's Bay on Christmas day, 2027; Gilthead at Penzance, 2108; Puffins in mackerel-nets, Blackheaded gulls in Penzance, 2143; Greater forked-beard at the Land's End, 2144; Black bream and wrinkled swimming crab near Penzance, Habits of the sucking fish, 2225; On a shark captured in Mount's Bay on June 11, 1870, supposed to be identical with the basking shark of Pennant and the broadheaded gazer of Couch, 2253; Spinous shark taken off Penzance, Sting-ray near Penzance, 2347; Small-eyed rays in Mount's Bay, 2348
- CREWE, Rev. H. HARPUR, M. A.**
Great crested grebe feeding its adult young, 2386
- DIX, THOMAS**
Quails in Pembrokeshire, 2394
- DOUBLEDAY, HENRY**
Hedgehog and rabbit, 1979; Food of the tits, 1981
- FEILDEN, Capt. H. W.**
Late appearance of the swift, 1981; Nesting of the great bustard in England, 2063; The nest of the alligator, 2090; The Scarborough bustard's egg, 2102; The protection of birds, 2132; On the southern range of the European merlin, 2261; Increase of rock birds at Flamborough, 2262
- GATCOMBE, JOHN**
Rare birds in the neighbourhood of Plymouth, 2026; Early appearance of the wheatear, 2100; Rare grebes in Devonshire, Redthroated diver on the Devonshire coast, 2106; Buff-coloured redwing, Black redstart, 2139; Grebes on the coast of Devon, 2142; Bridled guillemot and little auk, Arrival of summer birds in the neighbourhood of Plymouth, 2143; Arrival of migrants, 2180; Little egret in Devonshire, 2308
- GISSING, T. W.**
Brunnich's guillemot, 2261
- GOATLEY, T. H.**
Black redstart near Southampton, 2343; Gray phalarope near Southampton, 2385
- GUNN, T. E.**
Hen harrier in Suffolk, 1980; Buff variety of house sparrow, Pale variety of the common partridge, 1981; Little gull on the Norfolk coast, 1982; Fulmar petrel on the Norfolk coast, Abundance of the storm petrel in Norfolk, 1983; Buff variety of sky lark, 2101; Ruff in Norfolk, 2103; Smew at Yarmouth, 2106; Abundance of the little gull on the Norfolk coast, 2107; Gosawk in Norfolk, Golden oriole in Norfolk, 2221; Black redstart in Norfolk, 2222; Wood sandpiper and other birds in Norfolk, Slavonian grebes in Norfolk, 2225; Harriers in Norfolk, 2382; Wood sandpipers and greenshanks in Norfolk, Solitary snipe in Norfolk, 2384; Cormorant inland, 2386
- GURNEY, J. H., F. L. S.**
Supposed occurrence of the American mottled owl in Kent, 2221; Nest of a nuthatch, 2224; Black variety of Montagu's harrier in North Devon, 2260; Note on the eastern range of the European merlin, Note on the dark-coloured harrier of South Africa, 2304
- GURNEY, J. H., jun., F. L. S.**
The great auk, 1982; Black Montagu's harrier, 2305; Reparation of a maimed beak in the chough, 2306; Lesser kestrel near York, 2342; Woodcock and godwit, 2345; Spur-winged goose, 2346; Dabchicks in Kensington Gardens, 2347; Gray-

- headed wagtail at Gateshead, 2382; Quails in Norfolk, Gray plover at Blakeney, 2384; Pied head in the common skua, 2386; Leadenhall Market, 2393
- HADFIELD, Capt. HENRY**
Arrival of migrants in the Isle of Wight, 2180; Supposed occurrence of the American mottled owl in Kent, 2181, 2382; Increase of sea-fowl in the Isle of Wight, 2184; Green woodpecker in the Isle of Wight, 2224
- HAMEL, EGBERT D.**
Large salmon in the Tame, 2144; Parasite of fish, 2185; Otter in the Tame, 2342; Cream-coloured magpie, 2344
- HARRIS, J. W.**
Wagtail in pure white plumage, 2100
- HART, W., and SON**
Osprey at Poole, 2382
- HARTING, J. E., F.L.S., F.Z.S.**
On the immigration of the gray phalarope (*Phalaropus fulicarius*) and the recent occurrence of this species in Sussex, 1972; Reported occurrence of the ptarmigan in Yorkshire, 2023
- HEWITSON, W. C., F.L.S.**
Starling feeding on the grubs of *Phyllopertha*, Eggs of the cuckoo, 2027
- HORNE, CHARLES**
Jack snipe in a Norwood garden, 2141; Colour of cuckoos' eggs, 2181
- HÜGEL, Baron A. DE**
Scarce ducks in Torquay, 1981; Great auk's eggs in Edinburgh, Voracity of the cormorant, 1982; Angler in Torbay, 1984; Large badger in Somersetshire, 2017; Ornithological notes from South Devon, 2058, 2098
- HUNTER, JOHN**
Hoopoe in Kent, 2143
- JEFFERY, W., jun.**
Rare birds in West Sussex, 2059
- JONES, J. MATTHEW**
The mummy specimen of *Alca impennis* at Halifax, Nova Scotia, 1982; The great auk from Funk Island, 2182
- KERR, WILLIAM J.**
Notes from Denbighshire, 2184; Solitary snipe and quail in Denbighshire, 2345
- MATHEW, GERVASE F., F.L.S.**
Garganeys, &c., near Sheerness, 2182
- MATHEW, Rev. MURRAY A., M.A.**
Lesser gray shrike, shore lark and Temminck's stint near Great Yarmouth, 2060; Glaucous gull at Weston-super-Mare, 2066; Sclavonian grebes, rednecked grebe and goosander on the Taw, 2069; Rare birds at Barnstaple, 2144; American wigeon and garganey on the Taw, 2182; Nesting of the hobby in South Devon, 2304; Swallow taking a fly from a horse, 2307; Gray phalaropes in North Devon: moulting of birds, 2385; Abundance of the gray phalarope, 2410
- MAY, J. W.**
Life-histories of sawflies, translated from the Dutch of M. S. C. Snellen van Vollenhoven, 1993
- MENNEL, GEORGE**
Preservation of sea-fowl, 2387
- MONK, T. J.**
Shore lark near Newhaven, 2140; Garganey near Lewes, 2141; Roller near Lewes, Quail's eggs near Lewes, 2224
- MOOR, EDWARD CHARLES**
Bramblings near Woodbridge, 2022; Green sandpiper at Hasketon, 2105; White eggs of a robin, White egg of a linnet, Immense flock of starlings, 2306; Quails nesting at Witnessham and Westleton, Arrival of spring migrants, 2308; Three cuckoo's eggs laid consecutively in the same nest, 2344
- MOOR, Rev. EDWARD J.**
Titmouse's nest in a letter-box, 2020; Kingfisher's nest in a crag-pit, 2022; Bustards in Suffolk, 2024; The case of bustards at Swaffham, 2101
- MORE, A. G., F.L.S.**
Eagles in North Wales, 2381
- MOSLEY, Sir OSWALD, Bart., F.L.S.**
Golden plover on the Dove, 1981; Great northern diver at Burton-on-Trent, 1982
- MÜLLER, ALBERT**
Note on the odour of Cynipidæ and other Hymenoptera, 2027; Unusual oviposition of *Rhodites Rosæ*, *Linn.*, 2303
- MURTON, JAMES**
Barn owl laying eleven eggs, 2180
- NEWMAN, EDWARD, F.L.S., F.Z.S.**
Orioles in Great Britain, 2222; The horn of the Indian rhinoceros moveable, 2341; Shore larks near London, 2406

NEWTON, Prof. ALFRED, M.A.

The mummy specimen of *Alca immutabilis* at Halifax, Nova Scotia, 2065; On the northern range of the lesser redpoll, 2223

NEWTON, FREDERICK

Sharks off the Cornish coast, 2308

PRESTON, Rev. T. A.

Little gull, &c., near Marlborough, 2143

RAMSAY, R. G. WARDLAW

Shore lark at St. Andrews, 2022; Little gull at Coldingham, 2026; Shore larks near Dunbar, 2101

REEKS, HENRY, F.L.S.

On the natural history and hunting of the beaver (*Castor canadensis*, Kuhl), in Newfoundland; compared with observations made by Messrs. A. H. Green and Robert Brown, F.R.G.S., on the Pacific Slope of the Rocky Mountains, 1953; Notes on the Zoology of Newfoundland, 2033; Land rail found alive in a pea-rick in January, 2063; The pipit shot at Bridlington, 2067; Rare eggs from North America, 2326

RICKARDS, MARCUS S. C.

The American stint, gray phalarope, little stint and snow bunting at Northam Burrows, Pintail duck on the Severn, 2025; Wheatear on the 5th of March, 2139; Snow bunting on the Severn Bank, 2140; Gray-headed wagtails near Clevedon, Vinous-breasted pipit on the banks of the Severn, 2222; Gray-headed wagtail near Clifton, 2306; American stint, 2385; Notes from Northam Burrows, 2387

ROBERTS, GEORGE

Notes on migratory birds, 2220; Nesting of the chaffinch, 2223

RODD, EDWARD HEARLE

Common kite in Cornwall, 1980; Iceland jerrfalcon in Cornwall, 2017, 2060; Winter visitants in West Cornwall, 2068; Golden oriole at Scilly, 2139; Garganey or summer teal at the Land's End, Redbreasted merganser in adult plumage in winter, 2141; Horned grebe in Cornwall, 2142; Note on Montagu's harrier, 2180; Blacktailed godwit in summer plumage at Scilly, 2182; A list of the birds of Cornwall, 2193, 2229, 2269, 2321; Little bittern at the Land's End, 2224; British sandpipers at Scilly, 2345; Buffbreasted

sandpiper at Scilly, Pectoral stint or sandpiper at Scilly, 2346; Pied flycatcher at Scilly, 2382; Schinz's stint at Scilly, 2384; Ornithology of Scilly Islands in October, Autumn migration at Scilly, 2405; Hooded crow at Scilly, 2407; Schinz's stint at the Lizard, 2409; Boar-fish at the Scilly Isles, 2410

ROGERS, HENRY

Natural-History notes from Minas Geraes, &c., 2094

ROWLEY, GEORGE DAWSON, M.A.

Correction of an error, 2066

SMEE, A. H.

Sclavonian grebe on the Wandle, 2106; Blackthroated diver and red-breasted merganser on the Thames, 2107; Shore lark at Southwold and redthroated diver in London, Note on the migration of swallows, 2140; Note on migration at Carshalton, 2220; Common tern in Oxfordshire, 2308; Woodcock in August, 2384; Little stint, &c., near Leigh, 2385

SMITH, CECIL

Robin eating ladybirds, 1981; Fulmar petrel, little auk and gray phalarope in Somersetshire, 1982; Japanese or White's thrush in Somersetshire, 2018; Ruff in Somersetshire, 2103; Rednecked grebe at Teignmouth, 2106; Gray phalarope at Bishop's Lydeard, 2385; Little crake in Somersetshire, 2386; Schinz's sandpiper in North Devon, Sternum of Schinz's sandpiper, 2409; Gray phalaropes in Somerset, 2410

STEVENSON, HENRY, F.L.S.

Ornithological notes from Norfolk, 2055, 2361; Richard's pipit, 2066; Curious anecdote of a heron, 2068; Lesser gray shrike in Norfolk, 2139; Mr. Hamond's bustards, 2141; Shore larks on the Norfolk coast in the winter of 1869-70, 2366

STUBBS, CHARLES E.

Terns at Henley-on-Thames, 2347

SWEETAPPLE, EDWARD

Early whinchats, 2100; Tree sparrows near Oxford, 2140; Late stay of the fieldfares, 2181, 2221; Where do our summer visitants go? 2347

THOMPSON, THOMAS

Dates of the breeding of birds on Tyneside for 1869, 2027

TUCK, J. G.

Notes on the sea and shore birds of Aldeburgh, 2368

WALKER, FRANCIS, F.L.S.

Notes on Aphides, 1996; List of the Dermoptera discovered by J. K. Lord, Esq., in Egypt, and in the adjoining regions; with descriptions of the new species, 2296; A list of the Insects collected by J. K. Lord, Esq., in Egypt, along the African shore of the Red Sea, and in Arabia; with descriptions of the species new to Science, 2339, 2378, 2403

WALKER, THEODORE C.

Bird-haunts of the Outer Hebrides, 2073, 2113, 2163

WALLIS, H. M.

Otter near Ipswich, 1979; Snow

bunting at Aldeburgh, Immigration of rooks, 1981

WARDLAW-RAMSAY, R. G.

Quails in the East of Scotland, 2384

WATSON, J.

Grayheaded wagtail breeding near Gateshead, 2343; Nesting of *Motacilla flava*, 2406

WHARTON, C. BYGRAVE

Sand martin nesting in a tree, 2344; Nightjar near London, 2383

WILSON, S. M.

Californian quail in Sussex, 2383

ALPHABETICAL LIST OF SUBJECTS.

Acorns, loss of cows from eating, 2381

Acrididæ, 2298

Actiturus bartramius, egg of, 2326

Adams, Arthur, F.L.S., 'Travels of a Naturalist in Japan and Manchuria,' 2309, 2349

Akicera informis, description of, 2298

Alca impennis, 2012; the mummy specimen of, at Halifax, Nova Scotia, 1982, 2065

Alcidæ, extracts from a Memoir intituled a Monograph of the, 2004, 2081, 2124, 2155, 2205, 2245, 2289, 2327, 2369, 2396

Alligator, nest of the, 2090

Anecdote, curious, of a heron, 2068

Angler in Torbay, 1984

Anser gambelii, egg of, 2326

Anthus ludovicianus vel *Anthus rufescens*? 2100

Aphides, notes on, 1996

Aphis Cardui, 1997

„ *Euphorbiæ*, 1999

„ *Genistæ*, *id.*

„ *Hederæ*, 1998

„ *Laburni*, *id.*

„ *Papaveris*, *id.*

„ *Rumicis*, *id.*

„ *Saliceti*, 1997

„ *Sambuci*, 1998

„ *Sedi*, 1997

„ *terricola*, 1999

Aphrophoridæ, 2404

Arvicolidæ, 2043

Astacus fluviatilis, 2348

Auk, the great, from Funk Island, 1982, 2182; great, eggs of in Edinburgh, 1982; little, in Somersetshire, *id.*; in the neighbourhood of Plymouth, 2026, 2143; at Rye, 2107; in Mount's Bay, 2280

Avocet at Hastings, 2024; at Rye, 2107; in Cornwall, 2270

Badger, large, in Somersetshire, 2017

Badgers, 2282

Bats, Australian frugivorous, or "flying foxes," 2135

Bear, American black, 2038; polar, 2040

Beaver, on the natural history and hunting of the, in Newfoundland, 1953; on the Pacific Slope of the Rocky Mountains, 1961; in Scotland, 2017

Bee-eater, 2240

Bird-haunts of the Outer Hebrides, 2073, 2113, 2163

Bird's nest in solid wood, 2140

Birds, British, rare or new, 1984; migratory and wandering, of the County of Dublin, six additions to a List of, 2018; rare, in the neighbourhood of Plymouth, 2026; dates of the breeding of on Tyneside for 1869, 2027; rare, in West Sussex, 2059; varieties of, 2099; the protection of,

- 2132; summer, arrival of in the neighbourhood of Plymouth, 2143; rare, at Barnstaple, 2144; rare, in Wiltshire, 2185; of Cornwall, list of, 2193, 2229, 2269, 2321; migratory, notes on, 2220; water, 2242; rock, increase of at Flamborough, 2262; sea and shore, of Aldeburgh, 2368
- 'Birds of Marlborough,' 2178
- Bittern at Hastings, 2024; in Norfolk, 2361, 2363; little, at the Land's End, 2224; in Iceland, *id.*; in Cornwall, 2243; common, *id.*; in Nottinghamshire, 2308; American, at Cahir, Ireland, 2408
- Blackbird, 2055, 2059, 2392
- Blackbirds, pied, 2060, 2099
- Blattidæ, 2297
- Boar-fish at the Scilly Isles, 2410
- Botaurus lentiginosus, egg of, 2326
- Brachyrhamphus brachypterus, 2331
- " Craveri, *id.*
- " hypoleucus, 2331
- " marmoratus, 2328
- " Wrangeli, 2329
- Bradyporidæ, 2405
- Bramblings near Woodbridge, 2022; near Norwich, 2362
- Bream, black, near Penzance, 2225
- Bullfinch, scarlet, 1984; second occurrence of, near London, 2383
- Bunting, snow, 1977; at Aldeburgh, 1981; at Torquay, 1983; near Brighton, 1984; on the Severn Bank, 2140; in Cornwall, 2234; in Middlesex, 2407; Lapland, near London, 2061; near Brighton, 2383; black-headed, 2234; ciril, *id.*; ortolan, near Brighton, 2383
- Bustard, great, nesting of in England, 2063; on the Yorkshire Wolds, *id.*, 2103; in Cornwall, 2241; little, 2242; coran, habits of the, 2407
- Bustard's egg, the Scarborough, 2102
- Bustards, in Suffolk, 2024; the case of at Swaffham, 2101, 2141
- Buzzard, honey, 2055, 2198; common, 2198; roughlegged, *id.*
- Bythoscopus despectus, description of, 2404
- Callipterus Juglandis, 2000
- Canidæ, 2033
- Canis occidentalis, *id.*
- Cariboo, woodland, 2045; ? barren ground, 2049
- Carnivora, 2033
- Castor canadensis, 1953, 1961
- Cat, marten, 2282
- Cats killing squirrels, 2016
- Centrolophus Pompilus, 2259
- Ceratorhyncha monocerata, 2125
- Cervidæ, 2045
- Cervus Alfredi, note on, 2342
- Chaffinch, 2061; nesting of, 2223
- Chaitophorus Aceris, 1999
- " Populi, 2000
- " salicivora, 1999
- Chermes Abietis, 2001
- Chiffchaff, 2230
- Chough, 2239, 2283; reparation of a maimed beak in the, 2306
- Cicada Tamarisci, description of, 2403
- Circus cineraceus, black variety of, 2260, 2261, 2305
- Coot, 2275
- "Coralic," extracts (ornithological) from the Log of the, 2214
- Coranus arenaceus, 2380
- Coreidæ, 2341
- Cormorant, voracity of the, 1982; in Norfolk, 2055; in Cornwall, 2280; inland, 2386
- Cows, loss of, from eating acorns, 2381
- Crab, wrinkled swimming, near Penzance, 2225
- Crabs, calling, 2411
- Crake, little, 1977, 2275; in Somersetshire, 2386; Baillon's, 2275; spotted, *id.*, 2363
- Cray-fish, 2348
- Crocodyle, nest of the, 2002
- Crossbill, 2235; European whitewinged, 2018; whitewinged, 2239
- Crossbills, be-mired, 2383
- Crow, hooded, 1977, 2154, 2239, 2389, 2407; pied, 2062
- Cuckoo, eggs of, 2027; in Lincolnshire, arrival of, 2155; eggs of, three laid consecutively in the same nest, 2344; great spotted, *id.*
- Curlew, 2244, 2389; white, 2141; Esquimaux, in Dublin Market, 2408
- Cydnidæ, 2339
- Cymus cincticornis, description of, 2379
- Cynipidæ and other Hymenoptera, note on the odour of, 2027
- Dabchicks in Kensington Gardens, 2347
- Deer, new Indian, at the Zoological Gardens, note on, 2342
- Delphax dorsalis, description of, 2403
- Dermaptera, list of, discovered by J. K. Lord, Esq., in Egypt and in the adjoining regions, 2296
- Dinornis as human food, 2103
- Dipper, 2202
- Discovery, strange, in Wales, 2388
- Diver, great northern, at Burton-on-Trent, 1982; in the Midland Counties,

- 2064; in Cornwall, 2279; at Killarney, 2284; blackthroated, 2080, 2363; on the Thames, 2106; in Cornwall, 2280; redthroated, 2398; on the Devonshire coast, 2106; in London, 2140; in Cornwall, 2280
- Dog, Newfoundland, 2033
- Dotterel, 2242
- Dove, ring, 2241; rock, *id.*; stock, *id.*; turtle, *id.*, 2365
- Doves, rock, at Salisbury, 2101
- Duck, longtailed, 2018, 2059, 2278; pintail, 2277; on the Severn, 2025; eider, in Dublin Bay, 2064; in Cornwall, 2277; wild, 2153, 2277, 2287; scaup, 2278; tufted, *id.*, 2284
- Ducks, scarce, in Torquay, 1981
- Dunlin, 1984, 2155, 2275
- Dwarfs, 2262
- Eagle, spotted, 2196; whitetailed, 2197; golden, 2283; sea, *id.*
- Eagles in North Wales, 2381
- Edessidæ, 2341
- Egg, white, of linnet, 2306
- Eggs, of great auk, 1982; of cuckoo, 2027; barn owl laying eleven, 2180; colour of cuckoos', 2181; of quail, near Lewes, 2224; white, of robin, 2306; rare, from North America, 2326; of cuckoo, three laid in the same nest, 2344
- Egret, little, in Devonshire, 2308
- Emphytus cinctus, 1933
- Entomological Society, proceedings of, 1985, 2028, 2069, 2109, 2145, 2185, 2226, 2262
- Ephemeridæ, 2405
- Euceraphis, 2001
- Eurygastridæ, 2339
- Falcon, Iceland, in Cornwall, 2017, 2060; peregrine, 2058, 2197, 2283, 2361; gyr, 2197; redfooted, *id.*
- Felidæ, 2033
- Fiber zibethicus, 2043
- Fieldfare, 1979, 1983, 2155, 2202, 2392; white, 2141
- Fieldfares, late stay of, 2181, 2221
- Fieldfares and larks feeding on the Swede turnip, 2079
- Finch, citril, 1984; serin, *id.*; St. Helena, at Blackheath, 2223
- Fish, musical, 2109; parasite of, 2185; sucking, habits of the, 2225; sun, on the Dorsetshire coast, 2260; at Abbotsbury, *id.*
- Flatidæ, 2403
- Flycatcher, pied, 2201; at Scilly, 2382; redbreasted, 2201; spotted, *id.*
- Forficulidæ, 2297
- Forked-beared, greater, at the Land's End, 2144
- Fowl and pheasant, hybrid, 2057
- Fox, common American, 2036; cross, *id.*; silver, *id.*; black, *id.*; arctic, *id.*
- Fratercula arctica, 2083
- " corniculata, 2085
- " glacialis, *id.*
- Fulix affinis, egg of, 2326
- Gadwall, 2277
- Galls, the teachings of, 2411
- Gambetta flavipes, egg of, 2326
- Gannet, 2280, 2285
- Garganey at the Land's End, 2141; near Lewes, *id.*; on the Taw, 2182; in Cornwall, 2277; on Lough Broad, County Wicklow, 2284; near Lowestoft, 2364
- Garganeys, &c., near Sheerness, 2182
- Geese, wild, 1976
- Gilthead at Penzance, 2108
- Godwit, blacktailed, in summer plumage at Scilly, 2182; in Cornwall, 2270; in Lincolnshire, 2390; bartailed, 2270, 2390
- Goldeneye, 2059, 2078, 2098, 2278
- Goldfinch, remarks on the abnormal plumages of the, 2049
- Goosander, 2059, 2278, 2362, 2363; on the Taw, 2069
- Goose, graylag, 1979, 2275; brent, 2081, 2098, 2276; spurwinged, in Wiltshire, 2105; in Cornwall, 2276; Egyptian, in Leicestershire, 2225; bean, 2276, 2284; bernicle, 2276; whitefronted, *id.*; spurwinged, 2346
- Goshawk, 2058, 2283; in Norfolk, 2221
- Grebe, Slavonian, 2059; on the Taw, 2069; in Torbay, 2098; at Taunton, 2106; on the Wandle, *id.*; in County Dublin, 2182; in Cornwall, 2279; rednecked, in Bedfordshire, 2064; on the Taw, 2069; in Torbay, 2098; at Teignmouth, 2106; in Yorkshire, 2142; in Cornwall, 2279; great crested, 2098, 2279; feeding its adult young, 2386; horned, in Cornwall, 2142; eared, 2279; little, *id.*, 2363
- Grebes, rare, in Devonshire, 2106; on the coast of Devon, 2142; Slavonian, in Norfolk, 2225
- Greenshank, 2270, 2366, 2384, 2390
- Grouse, black, 2241; Pallas' sand, *id.*
- Gryllidæ, 2297
- Guillemot, ringed, 1984, 2280, 2285; bridled, 2143; Brunnich's, 2261; black, 2280, 2285; common, *id.*
- Gull, little, on the Norfolk coast, 1982, 2056, 2107; at Coldingham, 2026; in

- the Plymouth Sound, 2027; on the Yorkshire coast, 2081; in Torbay, 2098; in the City, 2107; near Marlborough, 2143; kittiwake, 2053, 2108, 2285, 2322; glaucous, at Weston-super-Mare, 2066; near Tralee Bay, 2285; herring, *id.*, 2323; Iceland, *id.*; brownheaded, 2287; blackheaded, 2322; ivory, *id.*; little, *id.*; Sabine's, *id.*; glaucous, 2323; great black-backed, *id.*; lesser blackbacked, *id.*
- Gulls, little, in Leadenhall Market, 2066; on the Yorkshire coast, 2107; near Great Yarmouth, 2143; greater and lesser blackbacked, 2285; blackheaded, in Penzance, 2143
- Halichærus gryphus, 2282
- Halydidæ, 2340
- Hare, polar, 2044
- Harpactor signiceps, description of, 2379
- Harrier, hen, in Suffolk, 1980; near Yarmouth, 2058; in Cornwall, 2199; caught in a net, 2343; nesting in Norfolk, 2365; Montagu's, 2180, 2199, 2366; marsh, 2199, 2283; dark-coloured, of South Africa, 2304
- Harriers, Montagu's, black, 2260, 2261, 2305; hen, in Norfolk, 2382
- Hawfinch, 2234
- Hedgehog and rabbit, 1979
- Hemerobidæ, 2404
- Hemiptera, &c., a list of, collected by J. K. Lord, Esq., in Egypt, &c., 2339, 2378, 2403
- Heron, 2243, 2284; curious anecdote of a, 2068; night, 2243; purple, *id.*; squacco, *id.*
- Hobby, 2197; nesting of in South Devon, 2304
- Homoptera, suborder, 2403
- Hooper at St. Asaph, North Wales, 2069; in Cornwall, 2376
- Hoopoe in Kent, 2143; in Cornwall, 2240
- Horse, Australian wild, 1980; swallow taking a fly from a, 2307
- Hyalopterus Pruni, 1997
- Iassus lineolifer, description of, 2404
- Ibis, glossy, 2244
- Insessores, 2201
- Jay, 2239
- Kakapo of New Zealand, 2408
- Kestrel, 2198; lesser, near York, 2342
- Kingfisher, 2058, 2240, 2361
- Kingfisher's nest in a crag-pit, 2022
- Kite, common, in Cornwall, 1980, 2198
- Kittiwake's first winter plumage, &c., 2119
- Knot, 2272
- Lachnus Piceæ, 2000
- „ Quercus, *id.*
- Ladybirds, robin eating, 1981
- Lapwing, 2243
- Lark, shore, 1984, 2058, 2060; at St. Andrews, 2022; near Newhaven, 2140; at Southwold, *id.*; wood, 2018, 2233; Siberian, at Brighton, 2022; sky, buff variety of, 2101; shore, near Weymouth, *id.*; in East Yorkshire, *id.*; near Dunbar, *id.*; crested, 2233; shorttoed, *id.*
- Larks, 1978; and fieldfares feeding on the Swede turnip, 2079; shore, on the Norfolk coast in the winter of 1869—70, 2366; near London, 2406; near Brighton, 2407
- Larus atricilla, egg of, 2327
- Leadenhall Market, 2393
- Leporidæ, 2044
- Lepus glacialis, *id.*
- Linnet, white egg of, 2306
- Linnet, mountain, 2235
- Lomvia californica, 2400
- „ ringvia, 2399
- „ svarbag, 2402
- „ troile, 2397
- Lunda cirrhata, 2087
- Lutra canadensis, 2037
- Lutrinæ, *id.*
- Lygæus leucospilus, description of, 2378
- Lynx canadensis, 2033
- Magpie, cream-coloured, 2344
- Mammalia, 2033
- Mantidæ, 2297
- Mareca Americana, egg of, 2326
- Marten, cat, 2037; pine, *id.*
- Martin, sand, 2240, 2365; nesting in a tree, 2344
- Merganser, redbreasted, 2059, 2098, 2278, 2362; on the Thames, 2107; in adult plumage in winter, 2141; near Oxford, 2142; plumage of adult male, 2183
- Mergus alle, 2252
- Merlin, 2058, 2198; European, on the southern range of the, 2221, 2261; on the eastern range, 2304
- Merlins in Ireland, 2406
- Micropus discolor, description of, 2379
- Migrants, arrival of, 2180, 2308
- Migration at Carshalton, 2220; autumn, at Scilly, 2405
- Moa, as human food, 2103; extinction of the, Sir George Grey on the date of, 2104
- Monaphis, 2001
- Moorhen, 2275
- Motacilla flava, nesting of, 2406

- Mud-flats, Humber, in August, 2335
 Muridæ, 2042
 Mus decumanus, 2042
 „ rattus, *id.*
 Mustela americana, 2037
 Mustelidæ, 2037
 Myrmeleonidæ, 2404
 Myrocallis Quercus, 1999
 Myzus Cerasi, 1996
 „ Lychnidis, *id.*
 „ Mahaleb, 1997
 „ Oxyacanthæ, 1996
 „ Persicæ, *id.*
 „ Ribis, 1997
 Nabis? discifer, description of, 2380
 Nabis siticus, description of, *id.*
 'Narrative of a Spring Tour in Portugal,'
 2171
 Nataores, 2275
 Natural History notes from Minas
 Geraes, &c., 2094
 Natural History of Wicklow and Kerry,
 2281
 Naucoris minusculus, description of,
 2380
 Nemopteridæ, 2404
 Nepidæ, 2381
 Nest of crocodile, 2002; of titmouse in a
 letter-box, 2020; of kingfisher in a
 crag-pit, 2022; of alligator, 2090;
 early, of longeared owl, 2099; of bird
 in solid wood, 2140; of chaffinch,
 2223; of nuthatch, 2224; of hobby,
 2304; of common swift, 2307; of
 quail, *id.*, 2308; of grayheaded wag-
 tail, 2343, 2406; of sand martin, in a
 tree, 2344
 Neuroptera, 2404
 Nightingale, 2285
 Nightjar near London, 2383
 Notonecta nanula, description of, 2381
 Nuthatch, 2240; nest of, 2224
 Œdipoda latifasciata, description of,
 2299
 „ obscurata, description of, 2300
 „ rubescens, description of, 2301
 „ terminalis, description of, 2300
 „ tineta, description of, 2301
 „ tricincta, description of, 2300
 „ variegata, description of, 2301
 Œdipodidæ, 2299
 Oriole, golden, at Scilly, 2139; in Corn-
 wall, 2203; in Norfolk, 2221, 2365
 in County Cork, 2222
 Orioles in Great Britain, 2222
 Ornithological notes from North Lincoln-
 shire, 1976, 2053, 2077, 2153, 2285,
 2335, 2389; from South Devon, 1983,
 2058, 2098; from Norfolk, 2055, 2361;
 from East Yorkshire, 2143; from
 Denbighshire, 2184; from Taunton,
id.; from Northam Burrows, 2387
 Ornithology of Scilly Islands in October,
 2405
 Osprey, 2197; at Poole, 2382; in County
 Kerry, 2406
 Otter, near Ipswich, 1979; American,
 2037; in the Tame, 2342
 Ouzel, ring, 2202
 Oxycoryphus venustus, description of,
 2302
 Owl, shorteared, 1976, 2200, 2392; long-
 eared, early nest of, 2099; in Corn-
 wall, 2200; American mottled,
 supposed occurrence of at Cobham,
 Kent, 2138, 2181, 2221, 2343, 2382;
 barn, laying eleven eggs, 2180; hawk,
 2200; little, 2200; scops eared, *id.*;
 tawny, *id.*; white, *id.*; chased by
 rooks, 2343
 Oystercatcher, 2243
 Pachycoridæ, 2339
 Pamphagidæ, 2298
 Panorpidæ, 2404
 Paracletus, 2000
 Parasite of fish, 2185
 Parrot, ground, of New Zealand, 2408
 Partridge, common, pale variety of, 1981;
 white, 2055
 Pastor, rosecoloured, 2239; near
 Brighton, 2344
 Pemphigus, 2001
 Pentatomidæ, 2340
 Petrel, fulmar, in Somersetshire, 1982;
 on the Norfolk coast, 1983, 2056; in
 Cornwall, 2325; storm, abundance of
 in Norfolk, 1983, 2056; in Lincoln-
 shire, 2053; in Ireland, 2285; in
 Cornwall, 2325; forktailed, 2056,
 2325; Wilson's, *id.*
 Phalarope, gray, on the immigration of
 the, and the recent occurrence of this
 species in Sussex, 1972; in Somerset-
 shire, 1982; at Hastings, 2024; at
 Northam Burrows, 2025; in Cornwall,
 2275; in Norfolk, 2363; near South-
 ampton, 2385; at Bishops Lydeard,
id.; in North Devon, *id.*; in Wales,
 2410; abundance of, *id.*; rednecked,
 2275
 Phalaropes, gray, moulting of, 2385;
 near Brighton, 2407; in Somerset,
 2410; in County Dublin, *id.*
 Phalerididæ, 2081
 Pheasant and fowl, hybrid, 2057
 Phyllaphis Fagi, 2001
 Phyllopertha, starling feeding on the
 grubs of, 2027

- Phymatidæ, 2298
 Pigeon races in Belgium, 2345
 Pigeon, wood, 2078
 Pigeons, wood, and rooks, 2054
 Pilchards in Mount's Bay on Christmas day, 2027
 Pipit, Richard's, 1984, 2066, 2233; tawny, 1984, 2233; near Brighton, 2383; Pennsylvanian, at Bridlington, 2021, 2067; meadow, 2154, 2233; vinous-breasted, on the banks of the Severn, 2222; rock, 2233; tree, *id.*
 Plover, golden, 1978, 2054, 2153, 2242, 2390; on the Dove, 1981; green, 2054; gray, 2242, 2384, 2390; great, 2242; Kentish, *id.*; little ringed, *id.*; ringed, *id.*
 Pochard, 2059, 2278
 Pæciloptera indicatrix, description of, 2403
 Polyphagidæ, 2297
 Pongos, 2226
 Ptarmigan, reported occurrence of in Yorkshire, 2023, 2062
 Pterocallis Alni, 2000
 Pterochlorus, 2001
 Ptychorhamphus aleuticus, 2250
 Puffin, 2098, 2280, 2285, 2364; on the Dublin coast in February, 2107
 Puffins in mackerel nets, 2143
 Quail, 2241, 2389; nesting of, 2307, 2308; in Denbighshire, 2345; Californian, in Sussex, 2383
 Quail's eggs near Lewes, 2224
 Quails in the East of Scotland, 2384; at Wilden, Beds, *id.*; in Norfolk, *id.*; in Pembrokeshire, 2394
 Rabbit and hedgehog, 1979
 Rabbits, plague of, in Australia, 2381
 Rail, land, found alive in a pea-rick in January, 2063; in Cornwall, 2275; water, *id.*
 Rangifer caribou, 2045
 " Grœnlandicus, 2049
 Raptores, 2196
 Rasores, 2241
 Rat, black, 2042; brown or Norway, *id.*; musk, 2043
 Raven, 2283
 Ray, sting, near Penzance, 2347; small-eyed, in Mount's Bay, 2348
 Razorbill, 2280, 2285
 Redpoll, lesser, on the northern range of the, 2223
 Redshank, common, 2244; spotted, *id.*; dusky (?), 2390
 Redstart, 1977, 2204; black, in the County of Dublin, 2019; on the plumage of, *id.*; in the neighbourhood of Plymouth, 2026; near Poignton, on the coast of Devon, 2139; at Scilly, 2204; in Norfolk, 2222; near Southampton, 2343
 Redwing, 1979, 1983; buffcoloured, 2139, 2343
 Regulus, firecrested, 2231
 Reeve, 2389
 Reindeer, American, 2045
 Rhinoceros at the Zoological Gardens, accident to the, 2304; Indian, horn of moveable, 2341; lesser one-horned, in England, 2342
 Rhodius Rosæ, unusual oviposition of, 2303
 Rhopalidæ, 2378
 Rhyparochromus semidolens, description of, 2378
 Roach, large, on the Avon, 2388
 Robin, eating ladybirds, 1981; albino, 1984; white eggs of, 2306
 Roller near Lewes, 2224; in Cornwall, 2240
 Rook, variety of, 2154
 Rooks and wood pigeons, 2054
 Rooks, immigration of, 1981; and starlings, immigration of, 2140
 Ruff in Norfolk, 2103; in Somersetshire, *id.*; in Cornwall, 2270; in Dublin, 2410
 Ruff and reeves, 2286
 Rutililla tithys and R. Carii, 2061, 2099, 2139
 Sable, American, 2037
 Sagmatorrhina Suckleyi, 2129
 Salmon, large, in the Tame, 2144
 Sanderling, 2243, 2389
 Sandpiper, green, 1983, 2105, 2244; purple, 2056; wood, in Norfolk, 2225, 2365, 2366, 2384; in Cornwall, 2269; Bartram's, 2244: common, 2269; buff-breasted, 2272; at Scilly, 2346; pectoral, 2274; at Scilly, 2346; Schinz's, 2274; in North Devon, 2409; sternum of, *id.*; purple, 2275, 2363; curlew, near Aberystwith, 2409
 Sandpipers, British, at Scilly, 2345
 Sawflies, life-histories of, 1993
 Schizoneura lanigera, 2001
 Scoter, 2277; velvet, 1983, 2059, 2277; common, 2059; surf, 2277
 Sea-fowl, increase of in the Isle of Wight, 2184; preservation of, 2387
 Seal, gray, 2282
 Shag, 2280, 2284
 Shark, basking, of Pennant, and broad-headed gazer of Couch, shark captured in Mount's Bay supposed to be

- identical with, 2253; spinous, taken off Penzance, 2347
 Sharks off the Cornish coast, 2308
 Shearwater, greater, 2325; Manx, *id.*
 Shieldrake, 2080, 2098, 2377, 2362; near Tralee, 2105
 Shoveler in Dublin Bay, 2225; in Cornwall, 2277; in Ireland, 2284
 Shrike, great gray, 1983, 2201; lesser gray, 2060, 2201; in Norfolk, 2139; redbacked, 2201; woodchat, *id.*
 Simorhynchus camtschaticus, 2205
 " Cassini, 2209
 " cristatellus, 2159
 " dubius, 2162
 " microceros, 2210
 " psittaculus, 2157
 " pusillus, 2245
 " tetraculus, 2207
 Sipa Glyceridæ, 2000
 Siphocoryne Fœniculi, 1999
 Siskin, 2059, 2235
 Skua, pomarine, 1983, 2056, 2323; Buffon's, 2056, 2324; Richardson's, 2058, 2324; common, 2323; pied head in the, 2386
 Smew at Yarmouth, 2106; in Cornwall, 2278
 Smews from Holland, 2153
 Smith, Rev. A.C., M.A., 'Narrative of a Spring Tour in Portugal,' 2171
 Snake poison, 2092
 Snipe, 2069, 2079; Sabine's, 2103, 2271; jack, in a Norwood garden, 2141; in Cornwall, 2271; common, *id.*; great, *id.*; brown, 2272; solitary, in Denbighshire, 2345; in Norfolk, 2384
 Snow-flake, 2079, 2153
 Somateria spectabilis, egg of, 2326
 Soricinæ, 2033
 Sparrow, house, buff variety of, 1981; noisy gatherings of, 2306; tree, 2018, 2234; food of, 2287
 Sparrowhawk, 2198
 Sparrows, tree, near Oxford, 2140
 Spoonbill, 2244, 2365
 Squirrels, cats killing, 2016
 Starling, 1976, 2154; feeding on the grubs of Phyllopertha, 2027; nesting place of, 2288
 Starlings, immense flock of, 2306
 Starlings and rooks, immigration of, 2140
 Stenobothrus lætus, description of, 2302
 " limosus, description of, *id.*
 Stoats, change of colour in, 2138
 Stint, American, at Northam Burrows, 2025, 2385; in Cornwall, 2273; little, at Northam Burrows, *id.*; in Corn-
 wall, 2272; near Leigh, 2385; Tem-
 minck's, near Great Yarmouth, 2060;
 in Cornwall, 2272; pectoral, at Scilly,
 2346; Schinz's, at Scilly, 2384; at the
 Lizard, 2409
 Stonechat, 1976
 Stork, white, 2243; black, 2244
 Strachia amœnula, description of, 2340
 " placens, description of, *id.*
 Strix asio, supposed occurrence of in
 Kent, 2138, 2181, 2221, 2343, 2382
 Summer visitants, inquiries respecting,
 2347
 Swallow taking a fly from a horse, 2307
 Swallows, 1983, 2365; migration of,
 2140, 2182
 Swan, Bewick's, 2276; mute, *id.*; wild,
id.; hooper, 2363
 Swans, black, in Lincolnshire, 2410
 Swift, late appearance of, 1981; alpine,
 2240; at Aldeburgh, 2344; common,
 nesting of, 2307
 Synthliborhamphus antiquus, 2290
 " Wurmizusume, 2293
 Teal, 2141, 2277, 2284
 Termitidæ, 2405
 Tern, arctic, 2285
 Terns, common and Sandwich, at Spurn,
 2065; at Henley-on-Thames, 2347
 Thresher, in the West Bay, Portland,
 2348
 Thrush, missel, 1978; White's, in Somers-
 etshire, 2018; in Yorkshire, 2142
 Tern, common, in Oxfordshire, 2308;
 arctic, 2321; common, *id.*; roseate,
id.; Sandwich, *id.*; black, 2322; gull-
 billed, *id.*; lesser, *id.*; whiskered, *id.*
 Terns, common and Sandwich, at Spurn,
 2026
 Thrush, White's, at Ballymahon, 2060
 Thurm, Everard F. im, 'Birds of Marl-
 borough, being a Contribution to the
 Ornithology of the District,' 2178
 Tit, bearded, 2332; cole, *id.*; great, *id.*;
 longtailed, *id.*; marsh, *id.*
 Titmouse's nest in a letter-box, 2020
 Tits, food of, 1981
 Trama, 2000
 'Travels of a Naturalist in Japan and
 Manchuria,' 2309, 2349
 Tryxalidæ, 2298
 Turnstone, 2243
 Upas tree absolved, 2412
 Uria Carbo, 2376
 " Columba, 2375
 " grylle, 2371
 Urinæ, 2251
 Ursidæ, 2038
 Ursus americanus, *id.*

- Ursus maritimus, 2040
 Utamania torda, 2015
 Vacuna Alni, 2001
 " dryophila, *id.*
 Varieties of birds, 2099
 Variety of house sparrow, 1981; of common partridge, *id.*, 2055; of crow, 2062; of sky lark, 2101; of redwing, 2139; of curlew, 2141; of fieldfare, *id.*; of rook, 2154; black, of Circus cineraceus, 2260, 2261, 2305; of magpie, 2344
 Viper, something about the, 2145
 Visitants, winter, in West Cornwall, 2068
 Vulpes fulvus, 2036
 " " *var. argentatus, id.*
 " " " *ater, id.*
 " " " *decussatus, id.*
 " lagopus, *id.*
 Wagtail, gray, 1978, 2233, 2362; pied, 2053, 2154, 2232; in pure white plumage, 2100; Continental pied, 2233; grayheaded, *id.*; near Clifton, 2306; near Gateshead, 2343, 2382; Ray's, 2233
 Wagtails, grayheaded, near Clevedon, 2222
 Warbler, grasshopper, 2204; blackcap, 2229; garden, *id.*; reed, *id.*; sedge, *id.*; willow, 2230; wood, *id.*; Dartford, 2231
 Waxwing, Bohemian, 2232
 Whale on the coast of South Devon, 2017
 Whales in the Firth of Forth and at Portsmouth, 2017
 Wheatear, early appearance of, 2100; on the 5th of March, 2139
 Whimbrel, 2244
 Whinchat, 2204
 Whinchats, early, 2100
 Whitethroat, 2230; lesser, *id.*
 Wigeon, 2277; American, on the Taw, 2182
 Wild-fowl at Hastings, 2108; in Norfolk, 2362
 Wolf, American, 2033
 Wolves in France, 2220
 Woodcock, 1977, 2057, 2153, 2270, 2391; on the 19th of March, 2141; in August, 2384; and godwit, 2345
 Woodpecker, lesser spotted, 2059, 2239; green, in the Isle of Wight, 2224; great spotted, 2239; green, *id.*
 Wren, melodious willow, 2018; reed, *id.*; common, 2391; at Spurn Point, 2407
 Wryneck, 2240
 Zoology of Newfoundland, 2033

THE ZOOLOGIST

FOR 1870.

On the Natural History and Hunting of the Beaver (Castor canadensis, Kuhl) in Newfoundland; compared with Observations made by Messrs. A. H. Green and Robert Brown, F.R.G.S., on the Pacific Slope of the Rocky Mountains. By HENRY REEKS, Esq., F.L.S.

It was not my intention to have written anything on the natural history of the beaver in Newfoundland until I had arrived at its proper place in the systematic list of North American mammals; but I have been induced to do so from having recently read a very interesting paper on this subject by Messrs. Green and Brown, published in the 'Journal of the Linnean Society' for August, 1869. As the observations of these gentlemen differ in some particulars from my own, and believing that such differences are mainly due to climatic influences, or some other cause best known to the beavers themselves, I shall in nowise criticise their remarks, but merely make extracts and compare them with my own notes and observations, which of course I am bound to believe are equally truthful.

Of the beaver in winter Mr. Green says, "Some of the beavers become torpid during January, especially those living near lakes, swamps, or large sheets of water which are frozen. They do not lay in a store of sticks for winter use, as stated by Capt. Bonville (Washington Irving's 'Adventures of Capt. Bonville'), as one day's supply of sticks for a single beaver would fill a house, and if a stick were cut in the autumn before the winter was over it would have lost its sap, and would not be eaten by the beaver." Mr. Brown says, "In winter they have a store of food secured at some convenient distance from their abodes. When they require any they start off to get it. They do not eat there, but bring it to their house, and there make their

meal." On this subject I find the following remarks in my notebook:—"One remarkable feature in the economy of the beaver is the immense quantity of food it consumes, which must be seen to be appreciated, and this can only be done during the long winter months. At this season we used to trap them through the ice, and consequently had to chop a fresh hole, or rather open the old one, every time we visited our traps, which occurred at intervals of two or three days. On every occasion, as soon as the hole was cut, the 'whittled' sticks were forced into the opening, and we had always to remove nearly a cart-load of these short sticks, from which the bark had been eaten, before we could inspect our traps. The base of the house in the fall of the year is of such large dimensions that I have no doubt much of the wood sunk by mud is used as food during the winter, but the beavers have probably a store elsewhere."

Of the period of gestation Mr. Green writes, it "is known with little certainty, as they are never trapped in summer. The female brings forth some time about the end of June; and it is a year before a beaver is full grown; and even then it has not the *embonpoint* of an elderly beaver. * * * * It produces from three to four at a birth. The teats are placed between the fore legs." Mr. Brown says (the italics are his), "The beaver has from *four to ten young*—most often four, sometimes eight, rarely ten. It carries its young *six months*. It produces *in May*. * * * * Sometimes as many as three generations will remain around the paternal abode." In my notes I find that I have written, "If a beaver's house is undisturbed, the young—two or four, *and even sometimes six?*—do not leave the parents until the second, or perhaps generally the third year, and are then called 'big medlars.' They do not breed until the following May or beginning of June, when they are termed 'old beavers.' The young under one year old are called 'pappoose,' and at two years 'small medlars.'" Mr. Green and Mr. Brown inform us that the young are called "kittens" west of the Rocky Mountains: they are invariably called "pappoose" in Newfoundland.

Of the dam Mr. Green says:—"They begin to build their dams about July or August, as soon as the summer floods begin to subside. For this purpose they generally choose a bend in the stream with high and clayey banks, and commence by felling a large tree that will reach across the water; or they fell a tree on each side of the water so as to meet in the centre. They then float sticks from six to four feet long down to the dam, and lay them horizontally, filling in the spaces

with roots, tufts of grass, leaves, and clay or mud. The branches of the first tree are the perpendicular supports, almost all the remaining sticks being placed horizontally and crosswise. The last six or eight inches in height is very insecurely constructed, being nothing but mud and leaves. The highest dam I ever saw was only about four feet six inches; but the generality of them are not above two or three feet. The action of the water, by bringing down mud, gravel or fallen leaves, strengthens the dam by making a sloping bank against it; and the willow sticks of which it is composed sending forth their roots and shoots, the dam in course of time becomes a fixture bound together as strongly as well could be. The winter floods almost invariably destroy the upper part of the dam, which is reconstructed afresh every year. The shape of the dam is almost always semicircular, with the crown of the arch down stream, thus reversing the order of things; but I have no doubt this is in consequence of the heads of the first or principal trees being floated down stream when they are first thrown."

Mr. Brown does not add much on this subject, but says, "The dams here, as everywhere else, are perfectly constructed, and with an opening in the middle for the current. * * * * Large trees are universally felled so as to fall with the head to land, because, if required for floating down, the branches would impede it being floated off, while the difficulty of dragging it down is not so great, over and above the fact of the impeding branches being easily gnawed off. Much ingenuity is displayed to effect the fall of the tree in the proper position. I have often, in my walks and sails along the solitary rivers of the western wilds, seen three or four beavers piloting a large tree down stream, and noticed that when they were approaching its destination they shoved it into the eddies inshore."

My own experience differs, and in my notes I have thus expressed myself:—"I must here correct what I take to be an error of some authors, *viz.*, that the beaver in making its dam usually selects a situation where a tree by being cut down will fall across the brook, and thereby greatly assist in damming, or, as it is termed in Newfoundland, 'stenting' the water. To the closet naturalist and those unable or unwilling to substantiate it, or prove otherwise, all this reads very pretty and interesting, but to the practical naturalist it is a mere fable, at least as far as my own experience goes, and that of the many Indians and settlers that I have questioned on the subject: but I will limit my observations to my own experience, which I think

quite sufficient to prove the contrary,—at least that such throwing of trees is the exception and by no means the rule.* My first residence in Newfoundland was on the banks of a good-sized lake, some ten miles long by two miles wide. This lake is surrounded almost entirely by woods, and is fed by several muddy streams—the favourite resort of beavers, and here as well as in many other places (for beavers were exceedingly plentiful) I had abundant opportunities for studying their economy. I observed that they invariably selected a muddy brook the banks of which were well studded with alder-bushes, small birch and willow, the stems and small branches of which are used in conjunction with roots of grass and plenty of mud, in forming the dam, and also in building their house. The stems and branches are usually cut into lengths of from two to four feet, the ends of which are stuck firmly in the mud; other branches and short sticks are then allowed to drift down the stream to the ‘stent,’ and are then sunk to the bottom by piling mud on them: this process is usually commenced when the water is at its lowest, and is continued until the brook is ‘stented’ sufficient for the economy of the beaver. The ‘stent’ is somewhat horse-shoe shaped, with the bow or arch pointing down stream, and so firmly is it constructed that it usually formed my bridge across these muddy and consequently dangerous brooks for wading. Often when tired and tolerably well laden with gun and dead birds have I blundered through the thick alder-bushes, sometimes knee-deep in water in search of the welcome ‘stent.’ During the spring and fall floods the beavers regulate the depth of water in their houses, as in fact they do at all seasons, by the ‘stent,’ for such indeed is its purpose, and so sensible are the animals of the slightest variation in the stream that shortly after a breach is made, if otherwise undisturbed, one or more beavers venture from the house to repair the damage, and often meet their deaths from the fatal gun while doing so.”

Of the houses themselves Mr. Green tells us they “are formed of water-logged sticks placed horizontally in the water. They have always two or more entrances, and a small chamber with a little grass for the beaver to lie on. The top of the house is constructed very thick, to guard against attacks by animals. Mud and roots are used to make the house solid; but no mud is seen from the outside, as the top is covered with loose sticks left there by the beaver after taking

* Captain Hardy fully bears out this assertion: *vide* “Forest Life in Acadia,” pp. 172—174.

the bark off. The houses are generally about four feet in height, and about six in diameter on the outside, and would hold about four beavers, though I have known small houses to hold two only. * * * * The beaver also burrows into the banks of streams, always taking care to have two entrances, one under (or close to) the water, and a smaller air-hole on land."

Mr. Brown says:—"The house has two flats: the bottom one is on a level with the water; the top one is used to sleep in, and has communication with the water through the bottom. The top one has direct communication with the land. * * * * In regard to the beavers' houses, I am forced to come to the conclusion either that travellers who have written regarding the beaver in the country east of the Rocky Mountains have woefully taken advantage of a traveller's license, have listened to mere hearsay wonders without seeing for themselves, or that the habits of the beaver differ much in different parts of the country.

"It is only after they have been pointed out to you that the 'houses' can be recognized, as they seem like loose bundles of sticks lying on the water.* In a recent account of the beaver in the British provinces in North America by an anonymous writer,† the houses are described as being exactly the same as I have seen them in the West, and not plastered domes. * * * * Sometimes they live in merely a tunnel or cave. In winter the Indians go along the edge of the ice, sounding with a stick; and wherever there is the opening of one of these tunnels, the sound being different, he watches and plugs up the opening."

The beaver houses with which I was familiar in Newfoundland, and which, at certain seasons of the year, I saw almost daily, were built as Mr. Green described them, but in many cases of very much larger dimensions. Some winter houses I have known to be twelve or even fourteen feet in diameter (outside measure), and at least six or seven feet high. The inside diameter was probably not more than five or six feet, so solid are the walls and roof, although no mud is visible from the outside. These large houses often hold from eight to twelve, or even, though rarely, sixteen beavers. Beavers usually have two houses: a summer house and winter house: the former is generally situated near the mouth of the brook, as the food of the beavers

* Mr. Brown says in a foot-note that "the 'house' in the Zoological Gardens, London, corresponds with this description."

† 'Land and Water,' March, 1868.

during the summer months consists in a great measure of the stems and roots of the pond lily* (*Nuphar advena*, Aiton), which is called "beaver root" by the settlers. In the fall of the year the beavers generally migrate up-stream to a more favourable situation for procuring a supply of winter food; and as soon as the house is rebuilt or repaired, these industrious animals are very assiduous in cutting down small birch and willow, on the bark of which they subsist in winter. Although birch trees as large as a man's thigh are frequently cut down, the beavers appear only to make use of the smaller branches, which are cut into suitable lengths and carried to the house, around which they are sunk by means of mud, to be used as food after the brook is frozen over. Until this takes place the beavers feed on the land, or on browse collected on the top of the house. Every house appears to have two passages from the exterior to the interior, which are termed "angles" by the natives. Whilst the winter house is building the beavers frequently live in a deep hole in the bank: this domicile, *pro tem.*, is called a "hovel."

In trapping the beaver the same devices appear to be employed both east and west of the Rocky Mountains. Mr. Green informs us that "the traps generally used in securing the beaver are large steel traps with a strong spring at each end, and fastened with a chain, from four to six feet long, to a pole, which is stuck in the bottom of the water as far out as the chain will allow, so that the beaver, when he feels the trap, may run into deep water, and as he gets tired, the weight of trap taking him down, he drowns. A beaver, when trapped, never tries to get to land, but makes a dive for the deepest water, and should the water be shallower than four feet, he will, in a short time, amputate his foot so as to relieve himself. He always takes his foot off at a joint, and draws the sinews out of his shoulder, instead of biting them through. * * * * A beaver is generally caught by his fore foot, and should the trap be set too deep below water his toenail only gets caught. The trap is set in the beaver-run, or just where it springs into a hole in the bank. It must not be set in too shallow water, for then he amputates his foot, or in too deep, for in that case he does not get caught at all, but swims over the trap. The proper depth to set a trap is five inches. The beaver is then caught by his fore foot. * * * * A full-grown beaver weighs about

* Mr. Green alludes to the beavers feeding on this plant and also on alder (*Alnus oregana*), but I never could find a "whittled" alder stick, although alder is sometimes largely used in building the "stent."

thirty-four pounds. * * * * A good skin will weigh two and a half pounds; but it is very rarely that one weighing that amount is caught in Vancouver Island. The Hudson's Bay Company give only from seventy-five to eighty-five cents per pound at Victoria for peltries, so that a trapper now-a-days cannot get very fat at the work."

Mr. Brown says:—"In trapping, some strong-smelling stuff (commonly castoreum in rum or cinnamon) is spread on the path. The trap is then set in the water close to the bank, and covered with about four inches of water. The beaver, attracted by the strong-smelling substance, gives an approving slap of his tail, and starts off, if anywhere in the neighbourhood, to investigate the booty, and as he is leaving the water, gives a "purchase," so as to spring up the bank on the very place where the trap is concealed. * * * * The Opicheshah (Indians) approach to leeward at night, and spear the beaver from a canoe as he floats, eating a branch taken from the shore; or they shoot him when in shallow water, but not in deep water, as he sinks on receiving the shot. They also block up the opening into his house, break through the wall, and shoot or spear him. * * * * When beaver [fur] was thirty shillings per pound, Rocky Mountain beavers [skins of] were piled up on each side of a trade gun until they were on a level with the muzzle, and this was the price! The muskets cost in England some fifteen shillings."

The same rascally advantage was also taken of the Mic-Mac Indians in Newfoundland, but such ill-gotten wealth has rarely prospered among the settlers of that island. The following notes on hunting and trapping the beaver were penned during my residence in Newfoundland. This interesting animal may still be said to be common in Newfoundland, although great numbers are annually caught by the settlers, and even more by the Indians. The latter live almost entirely by the produce of their beaver fur: one Indian alone told me that he had caught and taken to St. John's, during the previous year (1866) no less than two hundredweight of beaver fur. As the Indians begin beaver-catching too early in the fall, before the fur is of sufficient length or thickness, it must have taken at least two hundred beavers to produce this weight of fur!

The Indians are great adepts in "drawing" beaver. This is done by removing part of the stent, or dam, and concealing themselves afterwards on the leeward side of the brook, near the house, or very

frequently near the "stent," until the beavers come out to repair the broken dam, when they are easily shot. If "drawing" be determined on it must be done very noiselessly, or the beavers will not leave the house, which they will otherwise generally do on finding that the water is falling too rapidly. If the beavers are long in making their appearance at the "stent" another plan is resorted to, which, although of more trouble to the hunter, is generally more certain of success. The beavers have usually two passages leading into the house, which are termed "angles" by the trappers: these, which are under water, have to be found out and carefully barred by driving stout stakes into the mud at the opening of each passage, which effectually cuts off the retreat of the beavers: the house is then chopped open at the top and the inmates either shot or knocked on the head with a tomahawk.

The settlers usually catch them in strong iron traps, such as are used for catching foxes. These have to be set with great care, as the beaver, if not immediately drowned by the weight of the trap keeping it under water, will soon "cut out"—*i. e.* gnaw off its leg. To catch a beaver by the fore leg the trap is placed either four or five inches under water, and to catch it by the hind leg it must be either eight or nine inches under water. In either case the trap must be placed on the side of the house, and the stake, to which the trap is fastened, must be driven into the mud as far from the bottom of the house as the trapper can reach, so as to prevent the beaver carrying the trap on to the top of the house above water. If all this is carefully attended to there is not much fear of success, for the beaver as soon as trapped endeavours to get the trap above water, but failing in this tries to drag the trap into the house, at the bottom of which the chain becomes entangled and the poor animal is soon drowned.

On the other hand want of care not only lacks success, but must entail great misery on the beavers themselves. I well remember on one occasion a settler visiting his traps and finding that he had taken a leg each from seven different beavers, but this, I have no doubt, was not entirely the fault of the trapper, who was an "old hand," as the rivers in Newfoundland fall and rise so rapidly in the spring and fall, that it is sometimes almost impossible to keep the trap always the same depth under water. I have known the traps repeatedly thrown by the beavers pressing a short stick on the pan, but this may have occurred either designedly or accidentally. Mr. Brown gives an anecdote of the sagacity of the beaver, which I here introduce. He

says:—"In a creek about four miles above the mouth of Quesnelle River, in British Columbia, some miners broke down a dam, in the course of the operation for making a ditch, at the same time erecting a wheel to force up the water. Beavers abounded on this stream, and found themselves much inconvenienced by these proceedings. Accordingly, it is said that, in order to stop the wheel, the beavers placed a stick between the flappers in such a way as to stop the revolutions of the wheel. This was so continually repeated night after night, and was so artfully performed as to preclude the possibility of its being accidental."

The dried skin of an old beaver, *if caught in good season*, will frequently weigh two pounds.

In the good old trapping days, when beaver fur sold for a guinea a pound, it was not much trouble for some of the few English settlers to make money—however dishonest the practice: it was only necessary to take four or five gallons of rum, which could be bought of the American and Nova-Scotian traders at less than a dollar a gallon, and adulterate it with one-third water, and carry it into the country to the wigwams of the Indians, who would gladly exchange the skin of an old beaver, worth nearly two guineas, for a pint of rum! I am happy to say the Indians are far more sensible now, and take their fur to a much better market, although, unfortunately for them, it is not worth more than a quarter so much at the present day.

HENRY REEKS.

Thruvton, Andover.

[In order to bring this interesting subject more fully before the readers of the 'Zoologist,' I have thought it best, even though incurring the necessity of considerable repetition, to reprint from the 'Journal of the Linnean Society' (Vol. x., p. 361), the whole of the excellent papers to which Mr. Reeks has referred.—*E. Newman.*]

On the Natural History and Hunting of the Beaver (*Castor canadensis*, *Kuhl*) *on the Pacific Slope of the Rocky Mountains*, by ASHDOWN H. GREEN, Esq. *With Supplementary Notes* by ROBERT BROWN, Esq., F.R.G.S. (Communicated by JAMES MURIE, M.D., F.L.S.)

[Read November 5, 1868.]

I HAVE been for three years almost constantly engaged in trapping beavers, so that what remarks I may have to make on their habits and history, though somewhat at variance with the stereotyped

notions prevalent in compilations, are yet the result of my own independent observations.

About January their tracks may be seen in the snow near the outlet of the lakes where young fir trees grow. At this time they prefer young fir trees as food to any other kind of tree, the reason, doubtless, being that at this period the sap has not risen in the willow or alder (*Alnus oregana*). It is not often that females are caught in the spring; and the males seem to travel about, as the runs are not used so regularly as they are when the beavers are living near.

Some of the beavers become torpid during January, especially those living near lakes, swamps, or large sheets of water which are frozen. They do not lay in a store of sticks for winter use as stated by Capt. Bouville (Washington Irving's 'Adventures of Capt. Bonville'), as one day's supply of sticks for a single beaver would fill a house—and if a stick were cut in the autumn, before the winter was over it would have lost its sap, and would not be eaten by the beaver. A beaver never eats the bark of a tree that is dead, though he may gnaw a hard piece of wood to keep his teeth down. A little grass is generally found in the houses, but is used as a bed and not for food.

If February is an open month, the beavers begin to come out of their retreats, and frequent any running water near them; but it is generally March before the bulk of them come out of winter-quarters. When they come out they are lean; but their furs are still good, and continue so till the middle of May—though if a trapper thought of revisiting the place, he would not trap after April, so as to allow them to breed quietly.

About the end of March the beaver begins to "call." Both males and females "call" and answer one another. Sometimes on one "calling," half-a-dozen will answer from different parts of the lake. I have known beavers to "call" as late as August. Males fight during the rutting-season most fiercely. Hardly a skin is without scars; and large pieces are often bitten out of their tails. The beaver holds like a bull-dog, but does not snap. It shakes its head so as to tear. When trapped, it will face a man, dodge a stick, and then seize it, taking chips out of it at every bite. It seems to attack from behind.

The period of gestation is known with little certainty, as they are never trapped in summer. The female brings forth some time about the end of June; and it is a year before a beaver is full-grown; and even then it has not the *embonpoint* of an elderly beaver.

I have read that the beaver breeds at any time during the year; but this cannot be, or all the kittens that are trapped in the fall would not be of the same size. It produces from three to four at a birth. The teats are placed between the fore legs. The young (called kittens) whimper like young puppies when suckling, even when two months old. The females prefer deep sedgy lakes to bring their young up in, and they feed on grass about that time of the year (July or August). They feed on willow about April, May and June. I cannot say whether they are born blind or not, but suspect so. They are very fond of water-lilies (*Nuphar advena*,^s Ait.) in the spring. It is with me a matter of uncertainty whether the female litters in a house, under the ground, or in the dry sedges; but I should think, under ground or in the houses. In the autumn more females are caught than males. Trapping commences in September and continues to May; after that the trappers leave them alone, so that I do not know much about their doings in the summer.

They begin to build their dams about July or August, as soon as the summer floods begin to subside. For this purpose they generally choose a bend in the stream, with high and clayey banks, and commence by felling a large tree that will reach across the water; or they fell a tree on each side of the water so as to meet in the centre. They then float sticks from six to four feet long down to the dam, and lay them horizontally, filling in the spaces with roots, tufts of grass, leaves, and clay or mud. The branches of the first tree are the perpendicular supports, almost all the remaining sticks being placed horizontally and crosswise. The last six or eight inches in height is very insecurely constructed, being nothing but mud and leaves.

The highest dam I ever saw was only about four feet six inches; but the generality of them are not above two or three feet. The action of the water by bringing down mud, gravel, or fallen leaves, strengthens the dam by making a sloping bank against it; and, the willow sticks of which it is composed sending forth their roots and shoots, the dam in course of time becomes a fixture bound together as strongly as well could be. The winter floods almost invariably destroy the upper part of the dam, which is reconstructed afresh every year. The shape of the dam is almost always semicircular, with the crown of the arch down stream, thus reversing the order of things; but I have no doubt this is in consequence of the heads of the first or principal trees being floated down stream when they are first thrown. The body of water raised by these dams varies, of course, according

to the fall of the original stream, from a small hole of twenty feet diameter to a lake of miles in length. In the former case the beaver builds his house close to the dam, so as to get depth of water, and there saves himself from any hungry panther (*Felis concolor*, L.) or wolf who might feel inclined to indulge in beaver-meat. The beaver also burrows into the banks of streams, always taking care to have two entrances, one under (or close to) the water, and a smaller air-hole on land. With a good dog, capital sport may be had on some of the smaller rivulets leading into or out of a lake. The houses are formed of water-logged sticks placed horizontally in the water. They have always two or more entrances, and a small chamber with a little grass for the beaver to lie on. The top of the house is constructed very thick, to guard against attacks by animals. Mud and roots are used to make the house solid; but no mud is seen from the outside, as the top is covered with loose sticks left there by the beaver after taking the bark off. The houses are generally about four feet in height, and about six in diameter on the outside, and would hold about four beavers, though I have known small houses to hold two only.

The traps generally used in securing the beaver are large steel traps with a strong spring at each end, and fastened with a chain, from four to six feet long, to a pole, which is stuck in the bottom of the water as far out as the chain will allow, so that the beaver, when he feels the trap, may run into deep water; and as he gets tired, the weight of trap taking him down, he drowns. A beaver, when trapped, never tries to get to land, but makes a dive for the deepest water; and should the water be shallower than four feet, he will, in a short time, amputate his foot so as to relieve himself. He always takes his foot off at a joint, and draws the sinews out of his shoulder instead of biting them through. The stump heals up; and I think the beaver is none the worse for it, though he gets shy, and, perhaps, tells the other beavers to beware of traps. A beaver is generally caught by his fore foot; and should the trap be set too deep below water, his toe-nail only gets caught. The trap is set in the beaver-run, or just where it springs into a hole in the bank. It must not be set in too shallow water, for then he amputates his foot,—or in too deep, for in that case he does not get caught at all, but swims over the trap. The proper depth to set a trap is five inches. The beaver is then caught by his fore foot. Sometimes the teeth of a beaver are found to have grown beyond their proper length. I once saw one with the lower teeth three and a half inches beyond the gums. He was caught in a trap,

and was miserably thin; but, singularly enough, he had about the finest fur I ever saw. He was an aged animal. It is rare to see a beaver which has been trapped with its teeth whole, as they are often broken in trying to get out of the trap. A full-grown beaver weighs about thirty-four pounds. I am not an anatomist; but still I do not think there is anything very peculiar about its internal structure,* except that the heart weighs a mere nothing—the cavities being so very large. An old beaver when shot sinks, a kitten floats. A good skin will weigh two and a half pounds; but it is very rarely that one weighing that amount is caught in Vancouver Island. The Hudson's Bay Company give only from seventy-five to eighty-five cents per pound at Victoria for peltries, so that a trapper now-a-days cannot get very fat at the work. There are at present very few beavers on either Vancouver Island or the mainland, compared with what there must have been some years ago; but they have been increasing for the last six years; and no doubt by the time beaver-skins come into fashion again there will be a plentiful supply.

Supplementary Notes by Mr. Brown.

The following I add as an Appendix to the foregoing observations of my friend Mr. Green, whose opportunities for studying the animal were much superior to my own during my travels in North-west America, and whose account is valuable as being the plain unvarnished notes of a hunter—a narration of facts very familiar to him, written with no reference to preconceived notions or received theories. First, therefore, regarding the range of the beaver. It is found all over British Columbia, Oregon, Washington Territory, and even south to California and north to the limit of trees. It is not, however, found, as far as I can learn, in the Queen Charlotte Islands, but is abundant in Vancouver Island, though, curiously enough (in such a manner is history written) Colonel Colquhoun Grant, in his 'Description of Vancouver Island' (Journal of the Royal Geographical Society, vol. xxvii. p. 268), mentions that he has seen traces, and was not aware that the animal itself had been found. The fact of the matter is, he could have found abundance not far from his own door. Near Victoria, in Mr. Yales's Swamp, and in one near Dr. Tolmie's, are several beavers; and on the road to Cadborough Bay there are, in a small stream near where the road crosses, the remains of an old

* *Vide* Cleland, Edin. New Phil. Journal, new series, vol. xiii. (1860) pp. 14—20.

dam. In the interior they are almost everywhere abundant and on the increase. In a swampy lake near the mouth of the Cowichan Lake we found many; and an extensive swamp near the entrance of the Puntledge Lake was a great stronghold. On Young's Creek,* flowing into the same lake, were many dams. In the spring of 1866, when crossing the island from Fort Rupert to the head of Quatseeno Sound with some Indians, a great portion of our route lay among these beaver-ponds and dams. All through this district beavers swarm. The camps of the Indians were full of them; and the women laid before us the daintiest pieces of the meat, or exhibited to their white visitor all sorts of curiosities in the shape of fœtal beavers and beaver's teeth, with which they were gambling, using marked ones in much the same manner as our dice. At the Hudson Bay Company's Fort we lived upon beaver during that spring—beaver roasted and beaver broiled; beaver tail and beaver joint; beaver morning, noon and night. In regard to the beavers' houses, I am forced to come to the conclusion either that travellers who have written regarding the beaver in the country east of the Rocky Mountains have woefully taken advantage of a traveller's license, have listened to mere hearsay wonders without seeing for themselves, or that the habits of the beaver differ much in different parts of the country.

It is only after they have been pointed out to you that the "houses" can be recognized, as they seem like loose bundles of sticks lying on the water.† In a recent account of the beaver in the British provinces in South America by an anonymous writer‡, the houses are described as being exactly the same as I have seen them in the West, and not plastered domes. The vigilance of the little builders is so great that it is rarely, unless closely watched for a long time, that they can be seen. A passing traveller rarely surprises them at their work.

My friend Mr. John Tod, chief trader in the Hon. Hudson's Bay Company's service during a long residence at Fort M'Leod (a post of that Fur Company, situated in the northern portion of British Columbia), has communicated to me his observations, which, differing in some respects, substantiate in the main those of Mr. Green. The

* See the author's map and the memoir *Das Innere der Vancouver Insel* in Petermann's *Geographische Mittheilungen*, 1869, S. 87.

† The "house" in the Zoological Gardens, London, corresponds with this description.

‡ 'Land and Water,' March, 1868.

beaver has from *four to ten young*—most often four, sometimes eight, rarely ten. It carries its young *six months*. It produces *in May*. When the female is going to have young the male takes the young of last year (for sometimes as many as three generations will remain around the paternal abode), and goes up a river several miles, remaining there until the female has produced.

The dams here, as everywhere else, are perfectly constructed, and with an opening in the middle for the current. The only approach to plastering their houses which I have observed is its giving a self-satisfied “clap” of the tail on its laying down its load.* The loads are carried between the top of the fore paws and the under surface of the head. The trailing of the tail along the ground gives the vicinity the appearance of being plastered. The house has two flats: the bottom one is on a level with the water; the top one is used to sleep in, and has communication with the water through the bottom. The top one has direct communication with the land. Sometimes they live in merely a tunnel or cave. In winter the Indians go along the edge of the ice, sounding with a stick; and wherever there is the opening of one of these tunnels, the sound being different, he watches and plugs up the opening. If these holes or tunnels are used as escapes from the houses, they break into the latter. If the beaver is not in, the Indian makes a hole in the ice. He then makes a great noise, and watches the rippling of the water to see if he is there, because his motion will have that effect. When alarmed he generally rushes for his hole; and finding it closed, he is often shot in his endeavour to escape. In *trapping*, some strong-smelling stuff (commonly castoreum in rum or cinammon) is spread on the path. The trap is then set in the water close to the bank, and covered with about four inches of water. The beaver, attracted by the strong-smelling substance, gives an approving slap of his tail, and starts off, if anywhere in the neighbourhood, to investigate the booty; and as he is leaving the water, gives a “purchase,” so as to spring up the bank on the very place where the trap is concealed. His food is principally willows. The bark is preferred, though the wood is eaten when nothing else can be got. It will gnaw through thick trees, apparently for the top foliage; for immediately the tree falls the beavers spring on the branches of it. A stump showing beaver-gnawing is not unlike Indian chopping (small irregular chops); and

* On this point *vide* A. Murray, Edin. New Phil. Journal (1859), vol. ix. (n. s.) p. 216.

novices in the back woods often mistake them for Indian "sign." Large trees are universally felled so as to fall with the head to land, because, if required for floating down, the branches would impede it being floated off, while the difficulty of dragging it down is not so great, over and above the fact of the impeding branches being easily gnawed off. Much ingenuity is displayed to effect the fall of the tree in the proper position. I have often, in my walks and sails along the solitary rivers of the western wilds, seen three or four beavers piloting a large tree down stream, and noticed that when they were approaching its destination they shoved it into the eddies inshore. They always cut down the trees *above* their lodges, never on any occasion *below*. In winter *they have a store of food secured at some convenient distance from their abodes*. When they require any they start off to get it. They do not eat there, but bring it to their house, and there make their meal. Of the almost human intelligence of the "thinking beaver" the stories are innumerable; but many of them are much exaggerated, or even fabulous (such as Buffon's account). The following is tolerably well authenticated, my informants vouching for the accuracy of it. In a creek about four miles above the mouth of Quesnelle River, in British Columbia, some miners broke down a dam, in the course of the operation for making a ditch, at the same time erecting a wheel to force up the water. Beavers abounded on this stream, and found themselves much inconvenienced by these proceedings. Accordingly, it is said that, in order to stop the wheel, the beavers placed a stick between the flappers in such a way as to stop the revolutions of the wheel. This was so continually repeated night after night, and was so artfully performed, as to preclude the possibility of its being accidental.

In "Notes on the Habits of the Beaver," presented to the Royal Physical Society by Mr. James K'Kenzie*, of the Hudson Bay Company's Service, and to all appearance most careful and trustworthy, details are given differing somewhat from those related by Messrs. Green (in the foregoing paper) and Tod.

When I lived among the Opicheshah Indians, at the head of the Alberni Canal, V. I., I heard much about *Attoh*, the beaver, but remarkably little to the credit of its sagacity. They look upon it as rather a common-place animal, requiring no particular skill to trap. They used to tell us all sorts of stories about it, but I think they all

* Proceedings of the Royal Physical Society, Session 1861-62, and Edin. New Phil. Journal, vol. xv. pp. 299—302.

contain a vein of fiction. Mr. G. M. Sproat has gathered some of this information into his excellent 'Scenes and Studies of Savage Life,' to which I refer. The beavers lie in these houses, as the Indian expresses it, "like boys," but when the female has young ones she goes into a separate bed or chamber, I could not ascertain which. There is no story in a beaver-house for convenience of change in case of floods; the waste-way is generally sufficient to carry off any extraordinary quantity of water. In the Alberní country, at least, the houses on the banks of lakes are abandoned when the water is very high; and the beavers go to small streams, which they form into a succession of diminutive lakes; in these they breed*. He sleeps during the day, and comes out at night to feed. He cannot see far, but he is keen of scent. The Opicheshah approach to leeward at night, and spear the beaver from a canoe as he floats eating a branch taken from the shore; or they shoot him when he is in shallow water, but not in deep water, as he sinks on receiving the shot. They also block up the opening to his house, break through the wall, and shoot or spear him.

The flesh of the beaver, especially when first smoked and then roasted, is not at all unwelcome as an article of food. The tail, when boiled, is a noted article of trappers' luxury, though, forsooth, if the truth must be told, rather gristly and fat, and rather too much for the stomach of any one but a north-western hunter or explorer. "He is a devil of a fellow," they say on the Rocky Mountain slopes; "he can eat two beavers' tails!" The scrapings of a beaver's skin form one of the strongest descriptions of glue. The Indians at Fort M'Leod's Lake use it to paint their paddles; and the water does not seem to affect it.

When beaver was thirty shillings per pound Rocky Mountain beavers were piled up on each side of a trade gun until they were on a level with the muzzle, and this was the price! The muskets cost in England some fifteen shillings. These were the days of the "free trapper,"—joyous, brave, generous, and reckless,—the hero of romance, round whom many a tale of daring circles, the love of the Indian damsel, the beau ideal of a man, in the eyes of the half-breed, whose ambition never rose higher than a *coureur des bois*—a class of men who, with all their failings, we cannot but be sorry to see disappearing from the fur-countries. The fall of beavers' peltry rang their death-knell; and, as a separate profession, trapping is almost extinct, being nearly altogether followed, at uncertain spells, by the Indians

* Sproat, *lib. cit.* 249.

and the lower class of half-breeds. The world is fast filling in; the emigrant, with his bullock-team and his plough, is fast destroying all the romance of the far West—fast filling up with the stern prose of the plough and the reaping-machine and the whistle of steam what was once only claimed by the pleasant poetry of the songs of the *voyageur*, the *coureur des bois*—the hunters and trappers of the great companies! But perhaps it is better after all!

The beaver is easily domesticated, and learns to eat any vegetable matter, but requires water occasionally. One kept at Fort M'Leod got blind; but if it got access to water, it laved some on its eyes, and generally in an hour quite recovered its sight. It used to gather carpenter's shavings together, and carry them to the door: if the door was shot, it forced them up against it, finishing with a slap of its tail, as if it were building a dam. It had a great antipathy to the Indians. It would come into the Indian Hall, where the natives were seated, as is their wont, back to the wall. It would first take their fire-bag, then their axe, and so on until it had carried everything to the door, greatly to the amusement of the Indians. It would then attempt vigorously to eject the owner of the articles. Its "weakness" for gnawing exhibited itself in a very unpleasant manner; for occasionally, in the morning, the whole of the furniture was prostrate, the beaver having gnawed through the legs of the tables and chairs!

This leads me to remark that the beaver might be easily naturalized again in Britain; and though I cannot recommend them in the light of a drawing-room pet, yet I can conceive no more pleasant inhabitant of our lakes and rivers.* We must remember that at one time the beaver was an inhabitant of these islands, but became early extinct.

This was, of course, not the *Castor Canadensis*, but the *C. fiber*, *Linn.*; for the remains found in Britain, have now been decided to belong to the latter species, which is, I believe, not yet altogether extinct in Scandinavia.† We have, however, historical accounts of its former abundance in this country; and I cannot better conclude these desultory notices than by recapitulating the information we possess regarding it as a former inhabitant of the British Isles, referring for a more particular account of it as a Scottish animal, extinct within historic periods, to Dr. Charles Wilson's 'Researches on Castoreum and the Beaver in Scotland.' The earliest notice of it we know is in the ninth century, viz., in the Welsh Laws of Hywel

* *Vide* 'Farmer,' April, 1868.

† Nilsson: *Skandinavisk Fauna, Första Delen, Daggdjuren*, ss. 400—427.

Dha,* where we read of it even then as a rare or valued animal of the chase; for while the marten's skin is valued at twenty-four pence, the otter's at only twelve pence, that of the llostdlydan, or beaver, is valued at the great sum of one hundred and twenty pence, or at five times the price of the marten's, or ten times the price of the otter's. It thus seems, even in the times of the Heptarchy, to have been on the decrease; its sun had early begun to set. In the year 1158 Giraldus de Barri (or as he is variously called, Sylvester Giraldus or Giraldus Cambriensis), in his droll account of the itineration he made through Wales, in company with Baldwin, Archbishop of Canterbury (who journeyed thither in order to stir up the Welsh to join in the Crusades, and who afterwards followed the train of Richard Cœur de Leon, and fell before Acre), tells us that in his day it was only found on the river Teivi, in Cardiganshire, and gives a curious account of its habits, derived in part from his own observations. In John Ray's time many of the places in the neighbourhood of the river bore the name of *Llynrafrange*, or the Beaver Lake, and, for all we know to the contrary, may to this day. About the same time it was probably known in Scotland, but only as a rare animal. Hector Boece (or Boethius, as his name has been Latinized), that shrewd old father of Scottish historians, enumerates the *fibri*, or beavers, with perfect confidence as among the inhabitants of Loch Ness, whose fur was in request for exportation towards the close of the fifteenth century; and he even goes further, and talks of an "incomparable number," though perhaps he may be only availing himself of a privilege which moderns have taken the liberty of granting to mediæval authors when dealing with curious facts. Bellenden, in a translation of Boethius's "Croniklis of Scotland," which he undertook, at the request of James VI., about the middle of the sixteenth century, while omitting stags, roe-deer and even otters, in his anxiety for accuracy, mentions "bevers," without the slightest hesitation:—"Many wyld hors and amang yame are mony martrikis (Pine Martens), bevers, quhitredis (Weasels) and toddis (Foxes): the furrings and skynnys of thame are coft (bought) with gret price amang uncouth (foreign) merchandis." It is, however, more than probable that the worthy historians were influenced by a little national pride when they recorded the beaver as an inhabitant of Loch Ness in the fifteenth century, as no mention is made of it in an Act dated June, 1424, though *Martricks*, *Fourmartes* (Polecats), *Otters*, and *Toddis* are specified. They were perhaps so strongly

* Leges Wallicæ.

impressed by the wide-spread tradition of its existence in former days, as to be led to enumerate it among the animals of Scotland in those times; and it may be mentioned in passing that both worthies boast immoderately of the productions of their country. At the beginning of this century (at least) the Highlanders of Scotland had a peculiar name for the animal—Losleathan or Dobhran losleathan, “the Broad-tailed Otter.” According to Dr. Stuart, of Luss, in a letter to the late Dr. Neill, quoted by Prof. Fleming,* a tradition used to exist that the beaver or “Broad-tailed Otter,” once abounded in Lochaber. That may be so or not; but at all events it does not now exist anywhere within the bounds of the British islands; and a considerable doubt might be still thrown on the accounts of the old writers, were not remains continually dug up in all parts of the country. I would fain hope that in a few years it may again be an inhabitant of our lakes and rivers.

In these scattered notes I have not attempted anything like a systematic history of the animal, leaving the separate accounts to tell their own tales. No more pleasing work could, however, be written than a Monograph of the beaver, anatomically and historically; and I trust that before long it may be undertaken by some one at once an artist and a naturalist.†

*On the Immigration of the Gray Phalarope (Phalaropus fulicarius)
and the Recent Occurrence of this Species in Sussex.*

By J. E. HARTING, Esq., F.L.S., F.Z.S. ‡

OF late years ornithologists have noticed a marked increase in the occurrence in Great Britain of certain northern birds which are usually considered rare or accidental visitants to this country. It may be said that the published reports of an increased and increasing number of naturalists have led to this conclusion; and to a certain extent doubtless this is so. Nevertheless, individual observers who have been carrying on investigations for years in the same locality have

* Edin. Phil. Journ. 1838.

† (This wish has been in some respects anticipated in a volume, ‘The American Beaver and his Works,’ by Lewis H. Morgan: Philadelphia, 1868. It had not fallen into Mr. Brown’s or my hands when this paper was read.—J. MURIE.)

‡ Extracted from ‘The Field’ of November 13, 1869: communicated by the author.

remarked that, while certain species in their neighbourhood are becoming annually scarcer, certain others are becoming more numerous. Nor has this substitution, so to say, of one species for another, been remarked by ornithologists only. Botanists and entomologists have similar testimony to advance. Indeed, when we consider the gradual but important changes which are taking place in the soil itself, we can scarcely wonder that the species existing thereon should be likewise affected.

I have been led to these reflections from having recently seen on the Sussex coast several examples of the gray phalarope (*Phalaropus fulicarius*), a bird which, nesting in Iceland, and visiting this country in autumn, has of late years been more than usually common at that season of the year.

On reading the various reports which have been published in connection with the occurrence of this species in England, the following interesting facts may be elicited: first, these little birds come to us in the autumn, generally arriving during the early part of September; secondly, the direction in which they migrate appears to be from the north-east to the south-west, as shown by their being most frequently found in the south-eastern and southern counties of England; thirdly, a great proportion of them are birds of the year, as is the case with the majority of our shore birds, which pass northwards through this country in spring and return again in autumn with their young; fourthly, they do not as a rule remain with us throughout the winter, but pass on further south; fifthly, those which return to their northern haunts in the spring do not return by the same route, and I do not remember any instance in which the species has been obtained in England in the breeding plumage; sixthly, during their stay in this country they evince a partiality for the neighbourhood of fresh water pools, ponds and dykes, in preference to the sea-shore on which they first alight.

We have yet to ascertain in what latitudes the gray phalarope is most numerous in winter, and by what route it returns northwards to its breeding-ground.

During the autumn of 1866 a vast number of gray phalaropes were seen and shot in the south-eastern and southern counties of England. So numerous indeed were they, that Mr. J. H. Gurney, jun., in a pamphlet on the subject, published a summary of the occurrences, with the dates of observation, of more than five hundred individuals. As regards these birds, however, that year was an exceptional one.

Severe gales from the north-east had prevailed at the date of the autumnal migration, and icebergs had travelled further south than they had ever been known to do previously. These facts must be considered if we endeavour to account for the westerly direction which was taken by the great body of migrants in their flight towards the south.

Since that date no similar immigration has been observed, although several reports have been subsequently published touching the appearance of this species here in autumn.

During the latter part of September last, while shooting at Pagham Harbour, on the Sussex coast, I had several opportunities of studying this beautiful little bird in a state of nature, and of noting the character of its food, flight and actions in the water. I saw four individuals at different times and places, and shot three of them. My brother saw a fourth. A fifth was brought to me recently killed, and three others were sent to Brighton to be preserved. The occurrence of so many examples within so limited an area would lead one to expect a repetition of what occurred in the autumn of 1866; and, by way of contributing, therefore, to other reports which may appear on the subject, I now transcribe from my note-book an account of what I myself observed.

On the 21st of September, while walking between Siddlesham and Selsea, at a short distance from the sea, a gray phalarope suddenly rose close to me from a small dyke. It flew very slowly, and, being anxious to see something of its actions, I did not shoot at it, but endeavoured to mark it down in one of the numerous creeks which intersect the harbour at low water. In this I was disappointed, for, in spite of a long search, I could not find it again. To make quite sure that I had not mistaken the species, I returned to the dyke from which I had disturbed it, and searched along the soft margin for the foot-prints. Surely enough there was the impression of the unmistakable lobed foot, like that of the little coot, upon the mud.

On the 22nd of September my brother saw a gray phalarope at Wall End, not far from the coastguard station. On the 23rd of September I proceeded to the same spot, with the hope of finding the same bird again, and shot one, probably the same, at a pool of brackish water just inside the sea-wall.

The following day I revisited this pool, and, while walking in the neighbourhood, saw a gray phalarope flying towards me from the sea.

It alighted on a little island of mud in the pool, and I had a good opportunity of watching its movements for some time. On walking towards it with the intention of shooting it, it flew across the pool, when I fired, but unfortunately only wounded it, and it got away. The next morning, however, my brother found it dead on the beach, not far off. To judge by its having both tarsi broken, and a bad shot wound in the vent, it could not long have survived the shot. It is always distressing to a naturalist, when in pursuit of a bird, to fail in his purpose and let it escape wounded; he would far rather not shoot at it at all. But the powder is not always "straight!" On the 20th of September I devoted the entire day to a search for this species in the numerous broad dykes which intersect the country between Siddlesham and Selsea, knowing that, from its partiality for fresh water, it would more probably be found inland than on the sea-shore. I walked many a mile of dykes without seeing anything but a kingfisher, until at length, on turning a corner, I caught sight of a gray phalarope swimming in the water, about forty yards ahead. By making a *détour* and crawling carefully on hands and knees, I was enabled to get very close to it, and, peering through the grass on the edge of the dyke, could watch every movement of the graceful little bird. In its manner of swimming round and about, now and then pecking at some water-weed, it seemed to resemble the Gallinules, like them nodding the head at every stroke of the foot. When standing on the ground at a little distance, it looked not unlike a ringed plover, but at this season of the year it was much whiter. It rose once, and flew a little way down the dyke, when it alighted on the water again, and commenced swimming as before. On the wing it reminded me of the young of the black tern. After I had watched it for some time, I was cruel enough to shoot it, just as it was leaving the dyke. It fell out in the field on the opposite side, and I was punished with a severe wetting in endeavouring to jump across. The bird, however, was secured, and I was enabled to satisfy myself of the nature of its food, which I found to consist of small flies and beetles, with the admixture of a little vegetable matter which I could not determine. This confirmed what I had remarked in two other specimens examined.

J. E. HARTING.

Ornithological Notes from North Lincolnshire.

By JOHN CORDEAUX, Esq.

(Continued from Zool. S. S. 1908).

OCTOBER AND NOVEMBER, 1869.

Shorteared Owl.—October 1. This species is a regular visitant on our coast in the autumn. The beaters put up several this morning from a swampy patch near the middle of one of the "beck" plantations.

Wild Geese.—October 5. First large flock of wild geese observed: they were travelling due north. More geese have crossed this district during the month than has now been the case for many years. They take nearly the same line towards the N.N.W. or N., and this has been their course all through October.

"Hawk! honk! and for'ard to the nor'ard, is the trumpet tone."

And let those predict who choose a hard and severe winter; this, for some time to come at least, portends mild and pleasant weather.

Stonechat.—October 5 to 20. Several seen on the Humber embankment and in the marsh, all immature birds; are probably arrivals from the north. This species is rarely met with in this district excepting during the autumn, and occasionally in the winter months. I saw several on the Spurn sand-hills on the 11th.

Starling.—October 5. There can, I think, be no doubt that we have large arrivals of this species on this coast in the early autumn: they migrate during the night, and at this season no bird is more frequently dashed to death against the Spurn lights than the starling: the same is the case at Flamborough. On one thick night in the early part of this month the Spurn lantern-top was crowded with a noisy flock of these birds alighting there. Two immense flocks arrived in the marsh about the last week in September, infinitely more than could possibly have been reared in this district: these remained till the middle of October. I one day endeavoured to make a rough estimate of the number of birds composing the larger of these flocks: on the wing, and flying in close order, they appeared to occupy a space about half a mile in length, forty yards in breadth and twenty deep: on alighting they covered nearly seven acres of ground. The beating of so many small wings resembles the pattering of a heavy thunder

shower amongst the leaves of a thick wood, or the recoil of a great wave from a beach of pebbles.

Hooded Crow.—October 8. First arrivals on the coast. I am inclined to think these birds come across in the day: when on the coast I have seen them, in the afternoon, coming in overhead in a direction from the sea, and also, when at sea, observed flocks passing over towards the land.

Little Crake.—October 9. I am certain I saw this rarity in a patch of reeds near the "beck" this afternoon: I was so close to the bird that I could not have shot without blowing it to atoms. My dog chased it into the reeds, where I only just missed capturing it by hand.

Jack Snipe.—October 9. First seen.

Redstart.—October 15. A single bird seen, a mature male—a very late appearance.

Woodcock.—We have had both an early and large arrival of cocks: an odd bird or two seen as early as the last week in September. On the night of the 18th of October there was a terrific north-easter, strewing our Lincolnshire coast with wrecks, and destroying much life and property: in the morning the woodcocks were found along the coast in considerable numbers. On the 26th there was another fierce and destructive gale from the N.W., and on that and the following mornings great numbers of cocks were shot all along our eastern coast, one well-known sportsman bagging seventeen couple, and thirty-five couple are recorded as killed along five to six miles of coast. Those I have shot are fine birds and excessively fat. They are plentiful in the game-shops, and selling at about five shillings the couple. With reference to the remarks which have lately appeared in the papers respecting the migrations of these birds, an experience of many years leads me irresistibly to the conclusions that the winds which drive the woodcock to our coast are those blowing from N.W. to E.; that the stronger the gale from between these points the more likely we are to have good sport and find birds; that this species invariably migrates with the wind, and not against it, or with a favourable side-wind, but it should not have too much west in it; and that they never come with the wind in the south and west. As a rule those birds shot on this coast are excessively fat and in high condition, although we occasionally meet with a striking exception.

Snow Bunting.—October 19. Small flocks seen on the stubbles and on the Humber embankment; also at Spurn on the 11th.

Larks.—October 19 to 25. Immense flocks arrived between these dates in the marshes, and may now be found by hundreds in all the stubbles. At this season I have frequently, when on the coast, seen small straggling flocks of this species coming in from the sea, and also at night, when out at sea, recognised their familiar note. The lark, like the starling, is often picked up dead under our east coast light-houses.

Golden Plover.—October 26. Heavy gale from the N.W., with frost and snow. First flocks of golden plover seen in the marshes, but none between this date and the 10th of November, when we had a return of frost and some heavy snow squalls. On the 11th, from early morning till late in the afternoon, flock after flock of the golden and green plovers passed across this parish, flying from S.E. to N.W., at the average height of two hundred yards. Often two or three flocks were in sight at the same time, and there was rarely five minutes interval between them. The two species were never intermixed, each flock keeping distinct, which is the case when travelling to any distance, and this, I am convinced, was no ordinary change of feeding ground, but a general movement to some other part of the country. These flocks were of all sizes, from five birds up to many hundreds. Throughout the day incredible numbers of both these species passed over the marsh, so as to be the general subject of remark. This movement did not appear to be confined to the plover, for I noticed during the day hundreds of hooded crows, also dunlin, snipe and curlew, all travelling in the same direction. I have occasionally in past years noticed a like movement of wild fowl towards the N.W., and find that this movement is as certainly followed by mild and open weather as that their passage southward indicates frost and snow.

Gray Wagtail.—October 29. First observed. This graceful and lively species is this season most plentiful.

Missel Thrush.—October 29. I believe we have a very considerable addition to all our resident Merulinæ in the autumn, coming either from the northern counties or the continent: of these the missel thrushes are the earliest, arriving from the latter part of August to early in September. This autumn these flocks have been both large and numerous. Now from the middle to the end of September we always find thrushes more or less plentifully in our marsh turnip-fields—a district where, I need scarcely remark, from the absence of trees and shrubs, a thrush is a rarity at any other season. Later still,

the first fortnight in October, are the blackbirds: for every blackbird found in this parish in the latter summer there is now fully four. I put them up from all sorts of odd places: on the Humber bank, the sides of marsh drains, and on the higher lands, amongst the hedgerows and plantations, they swarm. Of these three species the missel and common thrushes do not remain in the district, but I do not observe any diminution in the blackbirds.

Graylag Goose.—November 1. Observed seven graylags pitch in one of our marsh pastures this afternoon, and in a favourable position for stalking: to drop into the nearest drain was a matter of necessity: a deep cold wade up this and along a cross drain, and a wriggle, snake-like, across a dirty cattle-trodden gatestead brought me to the place. I found, however, to my sorrow, that the birds had shifted their ground and walked to the middle of the field: the only chance left was to match legs against wings, and by running rapidly towards them trust to a long shot: this I did, and pulled at the gray-blue shoulders of the hindmost only to hear the shot strike the feathers.

Fieldfare and Redwing.—November 9. First observed. Like the thrushes the redwings on their first arrival will often resort for some days to the turnip-fields.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,
November 26. 1869.

Hedgehog and Rabbit.—I was rather surprised to see, in Mr. Gunn's "Notes on the Mammalia of Norfolk," a most absurd tale about a hedgehog, given on the authority of a gamekeeper. This harmless little animal is strictly nocturnal in its habits, and from its structure is unable to spring at anything, and it could not possibly retain its hold of a struggling rabbit if it ventured to attack one, which I do not believe that any hedgehog ever did.—*Henry Doubleday; Epping, November 15, 1869.*

[I quite agree with Mr. Doubleday that such tales ought not to be given on the authority of gamekeepers, who are the last people in the world to observe accurately or with unprejudiced eyes.—*Edward Newman.*]

Otter near Ipswich.—A friend assures me that, whilst travelling between Baalham and Stowmarket, on Thursday, the 11th of November, he saw from the railway, which runs for some distance close to the river Gipping, an otter: it was at some distance from the bank, snuffing about much in the manner of a ferret, and took no notice of the train: having seen the otter before, in the West of England, he was not likely to be mistaken. This makes the third occurrence of this rare animal that has come under my notice during eighteen months. Two young ones were caught during a flood in the locks at Great Blakenham, about seven miles from Ipswich, in July, 1868; and a full-grown specimen was killed by some bargemen on the river at Sproughton, some

time early in this spring: this is only three miles from Ipswich. I have heard it stated that others breed in this neighbourhood, and the second occurrence I have mentioned seems to give some weight to the supposition.—*H. M. Wallis; Ipswich, November 11, 1869.*

The Australian Wild Horse.—The wild horse of Australia will unquestionably at no distant date, like the mustang of the South American pampas, occupy in vast numbers the almost boundless plains of the interior. On the South Australian border, in Victoria, where some few years ago wild horses were comparatively few in number, large herds are now to be found. During periods of continual drought these herds travel immense distances in search of pasture, and on some stations detract considerably from the value of the runs to the north-west. The neighbourhood of the mallee scrub at the present season appears to be a favourite resort for wild horses. Feeding on the plains in mobs of from fifteen to thirty mares with colts at foot, the sire, a stallion whose progeny are usually of one colour, is most careful of his family, on the slightest alarm leading his charge at full speed under shelter of the almost impenetrable scrub. Several successful musterings of these steeds of the plain have been made of late, we are informed, and some of the colts broken in and sent to market, but, from the cheapness of horse-flesh all over the colony, the speculation has not paid. Many hundreds have been shot on the various stations, but apparently without reducing their numbers. Wild cattle in the neighbourhood of the mallee scrub have also become a complete nuisance. On the sheep stations beef of excellent quality is supplied all the year round as rations to the men employed. The wild cattle are hunted like the buffalo on the North American plains, and are said to be gradually increasing in numbers and spreading towards the Far North. The most astonishing circumstance attaching to these wild herds of cattle and horses is that, notwithstanding on the stations near their haunts sheep and other stock are dying very fast from the effects of the drought, these denizens of the plain appear in excellent health and sleek as moles. A most beautiful sight it is to see a large mob of wild horses startled on the plains, galloping at full speed, their unkempt manes floating in the wind, the speed of which they seem to equal; their tails sweeping the ground—they present to the eye a perfect embodiment of beauty and freedom.—*Adelaide Observer.*

Occurrence of the Common Kite in Cornwall.—A very fine adult specimen of the common kite was obtained from the grounds of Trebartha Hall, near Launceston, on the 1st of December. I have not heard of a specimen of this beautiful bird occurring anywhere in the West of England for the last fifty years, although I have a vague recollection of the species having (in my school-boy days, at Buckpostleigh, near Ashburton, in Devonshire) regularly bred in a large woodland, called "King's Wood," not far from Holne Chase, on Dartmoor. My nephew saw this bird to great advantage soaring with his forked tail in full relief against the sky: it had been observed feeding on carrion for some days at the kennel; and previous to this my nephew observed and reported to me, a large brown hawk which he observed on the extensive moors in the neighbourhood, and which he said appeared at a distance to be all tail: this no doubt was the kite.—*Edward Hearle Rodd; Penzance, December 2, 1869.*

Hen Harrier in Suffolk.—An adult female was shot near Wangford on the 10th of October, and sent me for preservation.—*T. E. Gunn; Regent Street, Norwich.*

Robin eating Ladybirds.—Mr. Cordeaux, writing of the late immigration of ladybirds (S. S. 1922), states he does not think birds eat them, as he has not found that any of our common species do so, such as the rook, starling, sparrow, &c. I have, however, found this to be the case with the robin, as on the 7th of November last I opened the stomach of a robin, accidentally caught in a gin set for rats, and found amongst other things the remains of at least two ladybirds, the hind wings of one so nearly perfect that it must have been almost the last thing eaten.—*Cecil Smith; Lydeard House, near Taunton.*

Food of the Tits.—There is probably a mistake in the statement, published in the 'Field' newspaper (see Zool. S. S. 1927), that coal tits (*Parus ater*) have attacked the filberts growing near London: this species does not congregate, and is principally found in woods and plantations of firs, to which trees it is especially partial. I think it very likely that the great tit (*P. major*) sometimes perforates the shells of nuts, like the nuthatch, for the sake of the kernel, as this species is very fond of the seeds of the yew, which it dexterously holds in its claws, and breaks the shell by repeated strokes of the beak. I now see and hear them daily doing this in my garden, and the ground is strewn with the shells of the seeds. The young birds are very fond of green peas, and often severely injure the crop, but they also destroy large numbers of the caterpillars of the common cabbage butterfly (*Pieris Brassicæ*). The blue tit (*P. cæruleus*) is very fond of cherries, and also of apples and pears, and often does great injury to the crops. I never saw the other British species attack any kind of fruit, but the marsh tit (*P. palustris*) is very partial to the seeds of the common sunflower.—*Henry Doubleday.*

Snow Bunting at Aldeburgh.—During the week before last I saw a flock of snow buntings at Aldeburgh: several were killed at the same time by a medical gentleman of that town.—*H. M. Wallis.*

Buff Variety of House Sparrow.—A buff-coloured variety of the house sparrow (*Fringilla domestica*) was shot in this neighbourhood during October last.—*T. E. Gunn.*

Immigration of Rooks.—The residents of Aldeburgh have lately observed large flocks of the common rook arriving in company with other migrants: the gamekeepers of the neighbourhood have noticed the same occurrence, and are quite clear that the birds seen were not the Royston or gray crow. I did not know that rooks either came to or left this country.—*H. M. Wallis.*

Late appearance of the Swift.—This afternoon I saw a swift (*Cypselus apus*) flying over the city of Chester: it was evidently hunting for food, as it circled round and round in its flight. During the summer the swift is most abundant in Chester, but they left two months ago.—*H. W. Feilden; Chester Castle, November 16, 1869.*

Pale Variety of the Common Partridge.—A very pale variety of the common partridge, a female, was shot at Stratton, near Norwich, on the 5th of November, and brought me for preservation.—*T. E. Gunn.*

Golden Plover on the Dove.—Numbers of the common and golden plovers have frequented for some time the banks of the Dove, and we are expecting they will be followed by a severe winter: the snow is now lying on the ground to the depth of two inches.—*Oswald Mosley; Rolleston Hall, Burton-on-Trent, December 2, 1869.*

Scarce Ducks in Torquay.—The following ducks were offered for sale in Torquay on the 2nd of December, on which day I examined them, but only found the last

fresh enough for stuffing:—a fine male gadwall, an adult female shoveller, a goldeneye and a smew (both adult females). I regret not to be able to give the localities where these birds were shot.—*A. de Hügel; Florian, Torquay.*

Great Northern Diver at Burton-on-Trent.—On the 29th of November a fine specimen of the northern diver found its way from the Trent and Dove up our small brook into the centre of our village, where of course it met with a speedy death, and is now in the hands of Mr. Franklin, a birdstuffer at Birmingham: for preservation, to be placed in my museum.—*Oswald Mosley; Rolleston Hall, Burton-on-Trent.*

The Mummy Specimen of Alca impennis at Halifax, Nova Scotia.—In the 'Zoologist' for October (S. S. 1835) I read with surprise, in a foot-note appended to Mr. H. Reeks' account of the Birds of Newfoundland, the announcement that the mummy specimen of *Alca impennis* presented to me by the Bishop of Newfoundland in 1864 "was originally intended to have been sent to Professor Newton." As this statement is incorrect, I should feel obliged by your allowing me to insert an extract from the Bishop's letter accompanying his generous and highly valued present, which affords sufficient explanation of the circumstance:—"I have the pleasure of sending you by Dr. Gilpin a very perfect skeleton of the great auk or northern penguin. I had intended it for Professor Owen, as it is a much better specimen than the one I sent to Mr. Newton; but I willingly leave the disposal of it to you, as you judge best for the gratification and edification of naturalists, and osteologists in particular." In compliance with his lordship's wishes I immediately forwarded it to the national collection, where I trust it will prove none the less serviceable to Science than if had been presented to Prof. Newton.—*J. Matthew Jones, President Institute of Natural Science; Halifax, Nova Scotia, November 5, 1869.*

The Great Auk.—I am obliged to Mr. Reeks for setting me right about the Funk Island great auk. The mistake was not exactly of my making: the sentence "Found by the Bishop of Newfoundland while on a missionary cruise at Funk Island," was inserted by a friend who was kind enough to look over my MS.—*J. H. Gurney, jun.; 14, Alpha Road, Regent's Park.*

Great Auk's Eggs in Edinburgh.—On visiting the Museum of Science and Art in Edinburgh, some short time ago, I was much surprised to find, amongst numerous others, two fine eggs of *Alca impennis*. This note may be of interest to some of the readers of the 'Zoologist,' as, so far as I know, these eggs have not been inserted in any published list. I see these eggs have been noticed in the July number of the 'Ibis' for 1869 (p. 358), by Capt. H. W. Feilden.—*A. de Hügel; November 22, 1869.*

Voracity of the Cormorant.—A cormorant, shot in Torbay, on the 24th of November last, was found, on being skinned by Mr. Shopland, the Tor naturalist, to contain in its throat a conger eel, which I measured, and found to be no less than two feet and a half in length. Except that its head was much bruised, probably by the cormorant in killing it, the fish was not otherwise hurt.—*Id.*

Little Gull on the Norfolk Coast.—Two examples of the little gull, in immature plumage, were shot on the coast near Saltouse on the 22nd of October: one of the above, which I preserved, proved on dissection to be a female: it weighed three ounces and a quarter.—*T. E. Gunn.*

Fulmar Petrel, Little Auk and Gray Phalarope in Somersetshire.—A fulmar petrel was shot on our coast, near Stolford, on the 26th of October: the skin was brought to

me a few days afterwards: the plumage is rather different from either of those mentioned by Yarrell, and from the one mentioned by me in the 'Zoologist' for 1866 (S. S. 562), as the whole of the head, neck and breast are gray, nearly like the back; the eyes were unfortunately taken out when the skin was given to me. The little auk was picked up dead on the mud, about the same time, but was unfortunately thrown away as being too muddy for preservation. The gray phalarope was picked up dead, but quite fresh, at Hestercombe, near Taunton, about the end of September: it was in the ordinary plumage of those found in England about that time of year.—*Cecil Smith.*

Fulmar Petrel on the Norfolk Coast.—A friend brought me a female specimen of the fulmar petrel that had been shot the previous day at Yarmouth. The bird was rather thin, its skin being infested with parasites of apparently two kinds, one a small black species, the other rather an enormous creature; of the latter I found six and several immature specimens; the adults were of a deep brown colour, with transverse lines of white on the body: the large parasites died about two days after the bird, but the black species lived until the fifth day. The bird weighed eighteen ounces: the stomach was empty, with the exception of an inch of tar rope, rather a singular item. The fulmar petrel is of somewhat rare occurrence on this coast.—*T. E. Gunn; November 6, 1869.*

Abundance of the Storm Petrel in Norfolk.—The little storm petrel has been quite abundant in Norfolk during the last week or two. I have had as many as seven specimens brought me for preservation: they were half starved, and were either dead or in a dying state when picked up, and their stomachs were empty, with the exception of two, in which cases I found a few minute seeds of a greenish colour. The birds were distributed almost all over the county: one was picked up near the Foundry Bridge, in this city; others at Hickling, Walton, Stalham, Woodrise, &c. I also heard of others at Lynn and Lowestoft.—*Id.*

Ornithological Notes from South Devon.—Swallows. These birds—or at least the greater part of them—left Torquay and neighbourhood on the 6th of October, although some were observed in that town as late as the 13th of November.

Pomarine Skua. Two immature birds of this species were shot in Torbay on the 12th of October.

Great Gray Shrike. I observed a bird of this species at the back of my garden on an oak tree on the 14th of October, and also on the two following days; but unfortunately I had no gun at hand on these occasions. This bird—or perhaps another of the same species—was observed by Mr. Shopland, in the beginning of November, on a tree some short distance from his house. It soon flew away, as far as I know, to be seen no more in this neighbourhood. The bird in question seemed to be a fine full-grown specimen.

Fieldfares and Redwings. Flocks upon flocks of these birds passed over my house on the morning of the 19th of October.

Velvet Scoter. A fine adult male and two females were shot in Torbay in the beginning of November.

Green Sandpiper. An adult bird was shot on Paignton beach on October 30th.

Snow Bunting. A mature bird was shot as early as the 29th of October, near Ilsham Farm, Torquay, and was preserved by Mr. Burt, curator of the Museum of this town, who kindly sent me the particulars.

Dunlin. Large flocks of these birds were observed on Goodrington Sands, Paignton, on the 2nd of November.

Albino Robin. A birdfancier in the village of Upton has a stuffed specimen of a robin entirely white, with the exception of the ends of the shafts of the primaries and tail-feathers, which are of a very light smoky gray. It was shot towards the end of last summer.

Ringed Guillemot. An adult bird was shot in Torbay on the 15th of October.—*A. de Hügel.*

Rare or New British Birds.—I think the following list of birds, all taken (except the serin finch), near Brighton, between September of the present year and the 6th of December, are worth recording in the 'Zoologist.' I have seen every one of the birds except the shore lark.

Richard's Pipit (*Anthus Richardi*). The first specimen was taken in the first week of September, the last on the 6th of December. In all I have seen eleven specimens; six of them I saw alive: some of them are doing well in confinement.

Tawny Pipit (*Anthus rufescens*). I saw a fine specimen of this bird that was shot on the 6th of September; another was killed at the same time, but was too much injured for preservation.

Shore Lark (*Alauda alpestris*). One was captured on the 16th of November, and is still alive.

Snow Bunting (*Emberiza glacialis*). Many specimens have been taken: they have been rather plentiful this season.

Scarlet Bullfinch (*Pyrrhula erythrina*). This bird was taken the last week in September: it is still alive and in good health at Mr. Swaysland's, the well-known naturalist, of Brighton.

Citrel Finch (*Fringilla citrinella*). A fine male was captured on the 20th of November. This is, I believe, only the second specimen that has been taken in this country: the first one is in the rich collection of Mr. Monk, of Lewes.

Serim Finch (*Fringilla serinus*). I saw a fine specimen that was taken in April of this year. There has been so many specimens of this species taken in this country that I think it may now be considered a British bird.

I saw also two other birds, one I believe to be a young snow finch (*Fringilla nivalis*) and the other a young male of the rustic bunting (*Emberiza rustica*). I saw both of these birds very shortly after their capture, and am quite sure of their being truly wild birds. I hope to send you shortly more particulars of these two birds.—*Frederick Bond*; 203, Adelaide Road, South Hampstead, N.W., December 15, 1869.

Angler in Torbay.—An angler (*Lophius piscatorius*), weighing about eighteen pounds, and measuring three feet two inches in length and one foot three inches in breadth (not including pectoral fins), was netted in Torbay on the 20th of November: the mouth of the fish was ten and a half inches broad, and the length of the slender filament (commonly called "fishing rod") was nine inches. These fishes seem to be rare in the bay, or they must keep in very deep water, as the sailor who brought this angler to me assured me that this was the very first of its kind he had known to be caught in the bay.—*A. de Hügel.*

PROCEEDINGS OF SOCIETIES.

ENTOMOLOGICAL SOCIETY.

November 1, 1869.—H. W. BATES, Esq., 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. 113, 114; ‘Journal of the Linnean Society,’ Zoology, No. 46, and ‘Proceedings,’ 1868-69; ‘Proceedings of the Zoological Society,’ 1869, pt. 1; ‘Journal of the Agricultural Society,’ ser. 2, vol. v. pt. 2; ‘Annales de la Société Entomologique de France,’ 1869, pt. 1; ‘Annales de la Société Entomologique de Belgique,’ vols. i.—xii.; ‘Mémoires de la Société de Physique, &c., de Genève,’ vol. xx. pt. 1; ‘Mittheilungen der Schweizerischen Entomologischen Gesellschaft,’ vol. iii. Nos. 1, 2; ‘Bulletino della Società Entomologica Italiana,’ vol. i. pt. 3; ‘Bulletin de la Société des Naturalistes de Moscou,’ 1868, No. 3; ‘Transactions of the American Entomological Society,’ vol. ii. Nos. 1, 2; ‘Memoirs read before the Boston Society of Natural History,’ vol. 1, pt. 4, and ‘Proceedings,’ vol. xii. Nos. 1—17; ‘Memoirs of the Peabody Academy of Sciences,’ vol. i. No. 1; presented by the several Societies. ‘Report of the Commissioner of Agriculture for 1867;’ by the United States Government. ‘Record of American Entomology for 1868;’ by the Editor, Dr. Packard. ‘List of the Lepidoptera of North America,’ pt. 1, by A. R. Grote and C. T. Robinson; by the Authors. ‘Entomological Notes,’ Nos. 1, 2; ‘Supplement to a List of the Butterflies of New England;’ ‘Check List of the Butterflies of New England;’ ‘Notes on the Stridulation of some New England Orthoptera;’ and ‘Catalogue of the Orthoptera of North America described previous to 1867;’ by Samuel H. Scudder; by the Author. ‘Entomological Correspondence of T. W. Harris,’ edited by S. H. Scudder; by the Editor. ‘The Canadian Entomologist,’ vol. i.; ‘Betrachtungen über die Verwandlung der Insekten im Sinne der Descendenz-Theorie,’ von F. Brauer; ‘Notes sur les Neuroptères de Mingrèlie,’ par le Baron de Selys Longchamps, et par R. M’Lachlan; by R. M’Lachlan, Esq. ‘Coleopterologische Hefte,’ No. 5; by the Editor. ‘Sepp, Nederlandsche Insecten,’ vol. ii. Nos. 17—38; by M. Snellen van Vollenhoven. ‘Synopsis des Scolytides,’ by the Author, Dr. Chapuis. ‘Exotic Butterflies,’ Parts 71, 72; by W. W. Saunders, Esq. ‘Lepidoptera Exotica,’ pt. 2; and ‘Cistula Entomologica,’ pt. 1; by E. W. Janson, Esq. ‘Descriptions of some New Species of Lamiidæ,’ by the Author, F. P. Pascoe, Esq. ‘Considerations on the Neuropterous genus *Chauliodes* and its allies;’ by the Author, R. M’Lachlan, Esq. ‘On the *Ailanthus*-feeding Silkworm;’ by the Author, W. F. Kirby, Esq. Three Tracts by the Baron de Chaudoir; seven by Prof. Ballion; and twenty-two Tracts by M. H. Lucas; presented by the Authors respectively. ‘The Zoologist,’ August to November; by the Editor. ‘The Entomologist’s Monthly Magazine,’ August to November; by the Editors.

The following additions by purchase were announced:—‘Beschreibung europäischen Dipteren,’ von Hermann Loew; erster Band. ‘Bericht der Entomologie während der Jahre 1865 und 1866,’ von Dr. A. Gerstaecker; zweite Hälfte.

Exhibitions, &c.

Mr. Janson, on behalf of Dr. Power, exhibited the following seven species of Coleoptera, all new to the British list:—(1) *Triarthron Maerkelii*, *Schmidt*, taken near Esher, 23rd July, 1869 (also taken by Mr. Oliver Janson, at Shirley, on the 7th August); (2) *Silvanus similis*, *Erichson*, at Esher, 4th August, by sweeping; (3) *Niptus gonospermi*, *Duval*, twelve or fourteen specimens taken by Mr. J. B. Syme on an old wall in the Orkneys; (4) *Bruchus lentis*, *Boheman*, at Birch Wood in May, and Gravesend in June; (5) *B. nigripes*, *Gyllenhal* (which in Kraatz's new Catalogue is said to be *B. vicix*, *Oliv.*), at Devil's Dyke, Brighton, in May; (6) *B. nubilus*, *Boheman*, near Surbiton and at Gravesend, in June (this in the Stettin Catalogue is said to be *B. luteicornis*, but in Kraatz's new Catalogue it is made a distinct species; it differs much in the form of the thorax, markings, size, &c., and is more like *B. seminarius*); (7) *B. canus*, *Germar*, at Gravesend, in June (this in the Stettin Catalogue is made identical with *B. cisti*, *Fabr.*, but it differs from ordinary specimens of that species in the shape of the thorax, length of antennæ, more elongate form, and peculiar gray colour; it is more like *B. loti*: a specimen in the European collection of the British Museum, named by Germar and deposited by Walton, agrees exactly with the Gravesend specimens). All these four species of *Bruchus* were found in essentially wild places, far removed from granaries or depositories of leguminous seeds, and were all taken fortuitously by sweeping. And lastly, *Phratora cavifrons*, *Thomson*, taken at Esher in June, also at Cowley and Darent, on poplars: introduced into the British list by Dr. Sharp, in *Ent. Mo. Mag.* v. 100.

Mr. F. Smith exhibited *Meloe rugosus* of Marsham (= *autumnalis* of Leach, *punctatus* of Stephens), a species not captured for the last thirty years, but formerly taken, according to Stephens, near Margate. About three weeks previously Mr. Smith, being near Prittlewell, Essex, went to the nest of a species of *Anthophora*, in which *M. proscarabæus* and other species are usually found, and by accident came upon a couple of dozen specimens of *M. rugosus* among grass in the neighbourhood of the nest, crawling about at the roots: he hoped to have kept them alive, but on the second day of their captivity an indiscriminate fight was commenced, in which both sexes joined; only four escaped mutilation, all the rest losing legs and antennæ and being reduced to fragments: the abdomen of each of the females was afterwards opened, and it appeared that with one exception all had deposited their eggs, which rendered their pugnacity still more remarkable. A subsequent visit to the same locality yielded five more specimens of the beetle. It was observable that this made the fourth species of *Meloe* found in the nest of the same kind of bee.

Mr. Grut exhibited some Coleoptera captured by M. Théophile Deyrolle near Trebizonde, including four new species of *Carabus*, *C. robustus*, *C. ponticus*, *C. Theophili*, and *C. Gilnickii*.

Mr. M'Lachlan exhibited the transformations of *Mantispa pagana*, which had been discovered by Dr. Brauer, of Vienna. The species was parasitic in the nest of a spider (*Lycosa*): the young larvæ were of the ordinary Neuropterous type, but when nearly full grown their legs almost disappeared, and the larvæ were reduced to almost footless maggots: the pupa was enclosed in a cocoon, and was of the ordinary Neuropterous form, like the *Hemerobiidæ*, to which doubtless the *Mantispidæ* were closely allied. Now that the habit of one species had been detected, it might be anticipated that the whole genus *Mantispa* would prove to be parasitic on spiders;

the eggs were probably laid in the egg-bag of the spider, and the larvæ would feed on the young spiders, or perhaps in their early stage on the eggs.

Mr. Albert Müller exhibited a large number of galls on various plants, and called particular attention to two kinds of excrescence on the leaf-stalk of the maple (*Acer campestre*), described in the following note:—

“*Firstly.* A Dipterous gall formed by a slender, club-like, reddish swelling of the petiole, sometimes in its middle, sometimes at its junction with the leaf; cell one, occupying the whole length of the gall, and tenanted by the white larva of a Dipteron as yet unknown to me, but which I am certain is *not* a Cecidomyia. In September, 1868, and again in the same month this year, I met with this gall on the identical maple-bush in a hedge-row near Shirley, but until now all my attempts at rearing the fly have utterly failed.

“*Secondly.* Also on the petiole of the maple-leaf, a series of spur-like, solid red excrescences, standing in a row, each about half a line high. These I am inclined to attribute to the same *Acarus aceris* of Kaltenbach which causes the well-known pear-shaped red galls on the leaves of this tree. But whether this be so or not, it is at any rate worth while to point out, that insect agency can produce, on thornless plants, excrescences closely resembling, or perhaps identical with, the natural thorns so commonly met with in other groups of the vegetable kingdom.”

Mr. Müller mentioned that the collection of galls formed by the late Mr. Wilson Armistead had been placed in the Museum of the Leeds Philosophical Society.

Mr. Cutter (who was present as a Visitor) exhibited, on behalf of Mr. Christopher Ward, several Diurnal Lepidoptera, including the female of Ornithoptera Brookeana, various species of Charaxes, Papilio Zalmoxis, and a specimen of Papilio Antimachus, captured one hundred and fifty or two hundred miles inland from Old Calabar. Of this gigantic and remarkable butterfly the only example hitherto known was collected by Smeathman for Drury a century ago, was figured by Drury and by Donovan, and was finally taken with Drury's collection to Australia by William Sharp Macleay.

Mr. Butler corrected an error in his paper (Tr. Ent. Soc. 1869, p. 273), where it is stated that *Argynnis Aglaia* and *Niobe* show every sign of being one and the same species; for *Aglaia* read *Adippe*. And as to the occurrence of the form *Niobe* in Britain, see Newman's 'Entomologist,' iv. 351.

Mr. Wormald exhibited a small box of butterflies sent from Shanghai by Mr. W. B. Pryer. Amongst them were *Argynnis Midas*, and a beautiful species of *Anthocharis* with falcate wings, apparently identical with the Japanese *A. Scolymus*.

Mr. Dunning exhibited half a dozen moths bred and sent by Mr. E. Holdsworth, of Shanghai. One was *Heterusia remota* (Walker, Cat. Lep. Het. B. M. p. 431), the larvæ of which were found by Mr. Holdsworth in great numbers at Van Vun, about six miles west of Soochow: the cocoon was described as “of very white colour, and of a very paper-like nature.” The other specimens were the subject of the following extract:—

“The specimens of a *Bombyx* have been reared by myself, from larvæ found feeding upon pine and dwarf oak at the hills near Van Vun. The larvæ when found were full grown, and hundreds of them had already spun their cocoons amongst the needles of the pine trees, and so plentiful were they that every tree had three or four cocoons on it. The following is a description of the larva as it appeared shortly before spinning its cocoon. *Body.*—Ground colour black or dark brown, covered with very

short lightish brown hairs, having a lighter shade towards the sides; down the back two lines of small tufts of hair, half black and half white, placed on each segment; along the sides, tufts of fine hair, bushy at the base and of a lighter shade there, almost white, the hair getting gradually longer towards the head, where it is fully one-fourth of an inch long; round the head a fringe of short light brownish hair; on the second and third segments are two tufts of hair, reaching across the back from side to side, the front half of a deep velvety red-brown colour, the rear half white; on the sides of the first, second and third segments are small brown tubercles. *Head*.—Large, round, with flat front. *Legs*.—Red-brown, the pro-legs reddish brown of velvety appearance, the two last legs (anal segment) formed like a lappet. The larvæ were found in the first week in May, and spun up immediately after; the moths came out in the last week in May."

The five specimens had been examined by Mr. F. Moore, and after comparison with the British Museum collection were returned to Mr. Dunning with the following names:—(1) a female specimen, *Oeona punctata* (Walker, Cat. &c., p. 1418), and two males, probably of the same; (2) a female, *Lasiocampa remota* (Walker, Cat. &c., p. 1439); and (3) a male, *Lebeda hebes?* (Walker, Cat. &c., p. 1462). It remains to be ascertained whether Mr. Holdsworth confounded distinct kinds of larvæ, or whether Mr. Walker in the same volume described one species under three different names and as belonging to three different genera.

The President exhibited a coloured drawing of a large larva, found by Mr. Henry Birchall on the trunk of an Avocado pear tree in the province of Mariquita, New Granada, the whole appearance of which closely simulated that of one of the most poisonous snakes of the country, the anterior segments being dilated and having a large pupillate spot on either side representing the eye of the snake. The moth was not reared, but it was doubtless a *Chærocampa*. The President had already recorded the occurrence of a similar snake-like larva in *Trans. Linn. Soc. xxiii. 509.*

Mr. Fry mentioned that he too had seen in Brazil larvæ resembling snakes of the country.

Prof. Westwood read the following note by Prof. Stål, of Stockholm, on the entomological collections existing in Sweden, which contain the type specimens of Swedish authors:—

"At the Museum of Stockholm we have the following type collections of insects—

- (1) The collection of De Geer (types to his 'Mémoires').
- (2) The types to Paykull's *Monogr. Histeridum*.
- (3) " Paykull's *Fauna Suecica*.
- (4) " Paykull's *Monogr. Staphylinorum*.
- (5) " Fallén's *Diptera Sueciæ*.
- (6) " Schönherr's *Gen. et Spec. Curculionidum*.
- (7) " Schönherr's *Synonymia Insectorum* (the species described from Schönherr's collection).
- (8) The types of the species which Gyllenhal described in *Insecta Suecica* from Schönherr's collection.
- (9) Types of Dalman.
- (10) " Fries.
- (11) " the species which Billberg described in *Nov. Act. Reg. Soc. Sci. Upsal. vii. 272.*

- (12) Types of Billberg to the species described in Monogr. Mylabridum from Schönherr's collection.
- (13) Types of a number of species described in Sahlberg's Nov. Ins. Species from Schönherr's collection.
- (14) Types of Boheman.
- (15) „ Stål.
- (16) „ Holmgren's Ichneumonidæ.
- (17) „ Thomson's Proctotrupidæ.
- (18) „ Wallengren's Lepidoptera.

“Of these the types of De Geer, Paykull, Fallén, Schönherr, Billberg, and Sahlberg, and the types of Dalman which were described from Schönherr's collection, are separated from the chief collections of the Museum.

“In Stockholm are also the types of the species described in the ‘Voyage of the Eugenie,’ and in the various papers on South African insects collected by Wahlberg.

“In Upsala are the following collections—

(1) The types to Linné's Museum Ludovicæ Ultricæ.

(2) The collection of Thunberg.

(3) The collections of Gyllenhal (containing the types to his Insecta Suecica, and various types to Schönherr's Synonymia Insectorum).

“In Lund there are

(1) The collections of Zetterstedt.

(2) „ of Dahlbom.

(3) „ of Thomson.

(4) „ of Ljungh.

“Thomson's collection is private: the others belong to the University.

“These are, I think, all the collections in Sweden containing types of Swedish authors.”

Prof. Westwood added that at Copenhagen the collections of Westermann are preserved intact in a special room of the Museum.

Paper read.

Mr. W. F. Kirby communicated a paper “On the Diurnal Lepidoptera described in Gmelin's edition of the Systema Naturæ.”

New Parts of ‘Transactions.’

Part 4 of the ‘Transactions for 1869’ (published in July), and Trans. Ent. Soc. 3rd ser. vol. 3, part 7 (the conclusion of the volume on Malayan Longicorns, published in October), were on the table.

November 15, 1869.—H. W. BATES, Esq., President, in the chair.

Additions to the Library.

The following donations were announced, and thanks voted to the donors:—
 “Catalogue of Scientific Papers,” Vol. iii.; presented by the Royal Society. Nine Tracts, by Dr. Leconte; presented by the Author.

By purchase:—Gemminger and Harold, ‘Catalogus Coleopterorum,’ Vol. 5.

Election of Members.

The following gentlemen were severally balloted for, and elected:—As Members, Messrs. D. J. French, of Chatham; and C. G. Websdale, of Barnstaple: as Annual Subscribers, Messrs. S. J. Barnes, of Birmingham; N. E. Brown, of Reigate; E. M. Janson, of Chontales, Nicaragua; O. E. Janson, of Highgate; W. H. Pearson, of Birmingham; and W. Douglas Robinson, of Dalbeattie.

Exhibitions, &c.

Mr. F. Smith, on behalf of Mr. Edwin Brown, exhibited a locust, several specimens of which had been quite recently captured at Burton-on-Trent: it appeared to be identical with a species of which the British Museum possesses five examples from North Bengal. The specimen exhibited was found in the yard of a brewery; and Mr. M'Lachlan suggested that it had probably been introduced in an empty returned ale-cask.

With reference to a recent article in the 'Annals and Magazine of Natural History,' in which Mr. Andrew Murray contends that *Rhipiphorus* is not a parasite, but only an inquiline in the nests of wasps, Mr. F. Smith desired to recall attention to the observations of the late Mr. S. Stone, recorded in Proc. Ent. Soc. 1864, pp. 62—66. On p. 64, Mr. Stone stated that on opening the closed cells of a nest of the common wasp, he had found a larva of *Rhipiphorus* firmly attached to the full-grown larva of the wasp, the mouth of the former buried in the body of the latter just below the head; and that in forty-eight hours it consumed every particle of the wasp-larva with the exception of the skin and mandibles. In another nest, which was destroyed by means of gas-tar, Mr. Stone also discovered a small larva of *Rhipiphorus* firmly attached to its victim, so firmly that when immersed in spirits they remained attached just as they were before death. This identical pair, preserved in spirits, and still *in situ*, was exhibited by Mr. F. Smith, together with numerous other larvæ and pupæ of *Rhipiphorus* which were placed in his hands by Mr. Stone. One of Mr. Murray's objections to the carnivorous propensity of *Rhipiphorus* was the fact that he had found the pupa of *Rhipiphorus* and the pupa of the wasp in the same cell: it appeared, however, that both were of stunted growth, and it was a matter of common experience that larvæ occasionally spin up before they are full fed, even when food is obtainable, which might have been the case with this *Rhipiphorus* larva: the attacks of parasites are not always fatal, but many Hymenoptera appear as well as their parasites, *e.g.* *Stylops* and the bee. Having regard to the known carefulness and accuracy of observation of Mr. Stone, Mr. F. Smith, notwithstanding certain difficulties raised by Mr. Murray which he was not at present prepared to explain, did not hesitate to re-affirm his belief that *Rhipiphorus* is a larvivoracious parasite, and not a mere guest which enters the nest of the wasp and shares the food of the legitimate occupants.

Mr. Pascoe exhibited some Australian Heteromera, including new species of *Helæus*, *Byrsax*, *Seirotana*, &c., and two new genera. One species of *Saragus* (undescribed, and for which the name *S. floccosus* was proposed), was remarkable from being covered with a peculiar fungoid growth, which was said by the captor to occur on the living insect, and also (or a similar growth) on the trees which the beetle frequented. This growth had been examined by Mr. Currey, and was pronounced to be truly fungous, in fact an *Isaria*, the early stage of a *Sphæria*. Several speci-

mens of the *Saragus* had been seen, all with the *Isaria* in the same stage of development.

Mr. Wallace enquired whether the supposed fungus had been microscopically examined, as it seemed highly improbable that a living animal should habitually have a living vegetable growing on it. More probably, if it really existed during the life of the beetle, it was a natural animal growth: an allied species has a hairy covering, and it was but one step further for a hairy covering to assume a fungoid appearance, a protective resemblance to the fungi or lichens growing on the trees upon which the beetle was found.

Mr. Albert Müller made some observations on the scent, when handled, of *Cynips lignicola* and another species which forms a gall on the under-side of oak-leaves: this scent was probably protective, and gave the insect an immunity from the attacks of birds, &c., and the rapid spread of *Cynips lignicola* over the country might be due to its rejection on account of its peculiar odour.

Mr. J. Jenner Weir added that the musk beetle was free from attack by birds, and this was doubtless due to its scent.

Mr. Salvin exhibited six species of *Clothilda*, in illustration of the paper mentioned below.

Mr. Briggs (who was present as a Visitor) exhibited a specimen of *Deiopeia pulchella*, captured near Folkestone on the 1st of October: its habit was to fly only a few yards at a time, and its appearance on the wing was described as resembling one of the *Geometræ*.

Mr. Davis (who was present as a Visitor) exhibited a large number of preserved larvæ of *Lepidoptera*; amongst them a series of *Cossus ligniperda*, of all ages, in willow-stems, preserved *in situ*; and a larva of *Sphinx populi* to which were attached a number of pupæ of some parasite. There were also a few dried larvæ of saw-flies.

Mr. Dunning referred to the swarms of insects of various kinds which had been reported during the autumn: he had himself encountered hosts of *Coccinellæ* (principally *C. 7-punctata*, but intermixed with a considerable number of *C. bipunctata*) both in Essex and in Yorkshire; and at Walton-on-the-Naze, on the 24th of August, he fell in with a countless swarm of *Syrphi*, which appeared to have all hatched simultaneously and to have at once commenced buzzing about in the hot sunshine in a foolish kind of way, without caring to take food, for most of them seemed to be mere shells without any substance inside. Noticing that Mr. Horne had recorded (*Newman's Entomologist*, iv. 356) the occurrence of a swarm at Margate on the same day, which was said to have included specimens of *Syrphus balteatus*, *S. decorus*, *S. tæniatus*, *S. topiarius* and *Eristalis tenax*?, Mr. Dunning placed in the hands of Mr. Verrall, for examination, a few remnants of the Walton swarm, and had been favoured with the following note:—

“Having looked closely through the *Diptera* you sent me, I find that out of fifty-six or fifty-seven specimens which I can recognize from the fragments, there are twenty-seven *Syrphus ribesii*, sixteen *S. corollæ*, eight *S. pyrastris*, two *S. luniger*, one *S. balteatus*, one or two *S. vitripennis*?, and one *S. pyrastris*, *var. unicolor*. This last variety is generally rare, but has this year appeared in tolerable abundance. The specimens of *S. vitripennis* are in such condition that I cannot speak for certain about them: they may be small examples of *S. ribesii*.”

Mr. Dunning remarked that only one name, *S. balteatus*, was common to the lists of Mr. Horne and Mr. Verrall, so that, if all were correctly named, no less than ten or twelve species of *Syrphus* occurred in the swarm on the S.E. coast on the 24th of August.

Mr. Verrall added that *S. balteatus* was rare in swarms; *S. decorus* he believed to be a discoloured variety of *S. auricollis*; *S. topiarius*, if British, was extremely rare, and did not occur in the Collections of the British Museum or the Entomological Club; and if *Eristalis tenax* occurred in a swarm of *Syrphidæ*, it could only have got there accidentally, as it might appear anywhere else from its universal distribution. He had once come upon the tail end of a swarm of *Syrphidæ*, and the stragglers seemed to be nearly all *S. auricollis* and its *var. maculicornis*.

With reference to the swarms of *Coccinellæ*, the President and Mr. M'Lachlan remarked that in this case there was no necessity to have recourse to the hypothesis of immigration, as they had both noticed, previously to the appearance of the beetles, an unusual quantity of the larvæ of *Coccinellæ* in the southern counties of England: the simultaneous hatching of a large number in one locality caused a scarcity of food there, and compelled many of them to move elsewhere; arriving at the sea-coast the majority were stopped, whilst some, attempting to go further, fell into the sea and were washed back with the tide. The littoral phenomena of the swarms were thus sufficiently accounted for. Mr. M'Lachlan added that the larvæ of *Coccinella* would eat the pupæ of their own species (see *Ent. Mo. Mag.* iii. 97); and Mr. Janson mentioned that, during the present season, he had had an apple-tree completely covered with black Aphides (commonly called American blight), the whole of which were cleared off in three or four days by *Coccinella 7-punctata*.

With reference to various letters which appeared during the autumn in the daily papers, Mr. J. Jenner Weir said that the "fireflies" reported at Caterham were the males of the common glow-worm; and Mr. F. Smith mentioned that he had a number of so-called "glow-worms" sent to him from Margate, which proved to be larvæ of *Telephorus*.

Mr. Pascoe remarked that, though insect-swarms were not common on or very near to the surface of the earth, there must be a great abundance of insect-life in the upper atmosphere; the destruction of insects at a considerable elevation by swifts must of itself be enormous.

With reference to the height to which insects may attain, Mr. Albert Müller recalled the fact, recorded by Mr. F. Walker (*Entom. Weekly Intell.* vii. 76), of the discovery of a *Chlorops lineata* enclosed in a hailstone which fell during a storm on the 18th of July, 1859.

Papers read.

The following papers were read:—

"New Genera and Species of Coleoptera from Chontales, Nicaragua," by the President.

"Descriptions of New Genera and Species of Hispidæ; with Notes on some previously described Species," by Mr. J. S. Baly.

"A Synopsis of the Genus *Clothilda*," by Mr. Osbert Salvin.—*J. W. D.*

Life-Histories of Sawflies. Translated from the Dutch of M. S. C. SNELLEN VAN VOLLENHOVEN, by J. W. MAY, Esq.

(Continued from Zool. S. S. 1959.)

EMPHYTUS CINCTUS, L.

Linnæus, Syst. Nat. i. 2, p. 925, No. 52. *Panzer, Fauna Germ.* cxliv. 18 and 19. *Klug, Die Blattw. in Gesellsch. naturf. Freunde zu Berlin Magazin*, 8er Jahrg. S. 279, No. 194. *Hartig, Blatt und Holzwespen*, p. 248, No. 3. *Dahlbom, Clavis n. Hym. Syst.* p. 35, No. 54. *Bouché, Naturgesch. des Ins.* p. 139. *Brischke, Abbild. und Beschr.* p. 16, taf. iii. fig. 6.

I was long in doubt whether I should publish the description of this species, for not only did my observations respecting the colour and ornamentation (if it can be so termed) of the larvæ not agree with the descriptions of Bouché and Dahlbom, with which I have for some time been acquainted, but also even my own descriptions of larvæ, from which I had at various times reared this species, did not entirely coincide. I was at last driven to the conclusion that this species proceeds from a larva, the individuals of which differ materially from each other, and I adopt this hypothesis until it shall be shown that certain very nearly allied species, of which the imagos have hitherto not been able to be distinguished, live on the same food-plant, and have all the same habit of life.

My first acquaintance with this insect is of old date. I remember when a boy having reared this species, as also *Cladius viminalis* and *Nematus Salicis*, whilst staying at the country seat of my grandparents. My first drawing of the larva, however, dates from the 18th of July, 1842: this is the one from which figs. 1 and 2 on plate 3 were made, and agrees pretty well with the description given by Brischke of *Emphytus viennensis*. I subsequently reared precisely the same sawfly from other larvæ, having the coloration and general appearance as shown at fig. 3; at all events, I was unable to discover any difference between the imagos.

My general description of the larva will be as follows:—Body cylindrical, but smaller in diameter at the posterior than at the anterior extremity, deeply wrinkled, always curved, never extended at full length; when at rest rolled up in a spiral form, with the caudal

extremity resting against the side of one of the segments between the fourth and the eighth. Legs twenty-two in number; the fourth segment apodal. Head nearly globular, depressed anteriorly; smooth on the vertex, clothed with exceedingly fine white hairs, and of a pale brown or sordid yellowish gray. On the vertex a wedge-shaped dark or very dark brown spot; two pale spots or maculæ behind the eyespots, which are round and black. Mandibles luteous. Some individuals are found having the head purple as far as the eyes, with the exception of two small pale triangular marks obliquely above the eyes, thence obscure yellow. The back is often more or less humped just behind the head.

The back is obscure green, in some individuals moderately dark, in others paler, as far as the stigmata. On the neck, above the first stigma, is a brown or blue smear. The ventral surface and the sides below the stigmata are sordid white, sometimes approaching a yellow tint; the legs are of the same colour. On the anterior coxæ are some little black lines; above each median and posterior leg is a gray spot, sometimes replaced by a black line, as in fig. 2. Brown spinous points above the anus. On each segment of the abdomen (see fig. 4) are three rows of little white spines, the anterior row containing only four or five, the two others ten or twelve each. The thoracic legs are armed with brown claws. The stigmata are white; the large tracheæ can be perceived through the skin. Other individuals were observed having the neck darker than the back, but wanting the marking on the neck so clearly shown in figs. 1 and 2; they also had the thoracic legs of a greenish tint. Bouché gives a description of the larva differing from this in some points: he says, however, "Über den dunkelgrünen Rücken läuft eine hellere Linie und vier Reihen schwarzer Flecke, so dass auf jedem Abschnitt vier zu stehen kommen." The largest of these black spots were observed to be *above* the small brownish yellow stigmata. He also noticed above the abdominal legs two nearly contiguous rows of pale gray spots.

Brischke also speaks of black spots dividing the green from the sordid white colour of the sides, and which are thus above the stigmata. Dahlbom likewise mentions these same spots, at least if I rightly understand his words, "macularum seriebus longitudinalibus utrinque duabus nigris." I have not observed any such spots above the spiracles in the examples I have had.

Observers are pretty well agreed as to the life-history of the larva, with the exception of one point, namely, the number of generations in

the year, to which I shall recur immediately. Authors state, and I can confirm the statement, that the larvæ in question are found rolled up in a spiral on the under sides of rose-leaves. I, however, also observed them resting on the upper surface of the leaves. They are very sluggish, and appear to feed in the early morning or during the evening twilight; whether they feed at night I do not know. I sometimes found them on the same leaf on successive days, from which I conclude they seldom move about during the night. I observed no difference of habit between the full-grown larvæ and very young ones; that is to say, larvæ which, as far as I could guess, had moulted only once. Dahlbom seems to consider that after the last moult they have a different colour or appearance to what they had previously; his mistaken reference to Réaumur has betrayed him into this error. I could perceive no difference, except in size, between a half-grown larva and one which had spun up.

With regard to the number of broods in the year, Brischke considers there is but one; Hartig thinks there are more. I believe we may safely conclude the latter is correct, seeing that the perfect insects are found from May to August, and young larvæ are met with in the last-named month.

On attaining its full growth the larva lets itself fall to the ground, where it undergoes its change without spinning up, or it creeps into a crevice in the bark or a split in a paling for the same purpose, or it bores for itself a passage in the pith of a branch of a rose tree which may have been cut off: this passage is sometimes from two to three centimetres deep, and in it the larva seems to be able to turn itself round; at least it is found with its head directed towards the opening, but having its head more or less concealed by frass.

In this hiding-place the larva passes the winter, and does not change into a pupa until late in the spring: this pupa is of a pale blue colour, resembling our fig. 5, which gives a magnified representation of one ensconced in a branch. For the rest there was nothing peculiar in the appearance of the pupa. The imago was produced from the pupa here figured on the 20th of May.

The females are infinitely more numerous than the males, the latter being seldom seen. The female is scarcely 5 mm. long, shining black and glabrous, somewhat more brownish on the thorax, and being a little more bluish on the abdomen. The neck is pretty long, and the upper surface is devoid of any hard integument: there is a similar bare place in the middle of the dorsum of the first abdominal

ring. The cenchri are white; the fifth abdominal segment is also white; the attachment of the following segment shows through as an indistinct ring; coxæ and femora blue-black, the anterior knees reddish; tibiæ red, those of the posterior legs white at the base; tarsi red, with brown claws. The stigma of the wings is blackish, with a white base; the wings themselves are somewhat smoky.

Besides being smaller the male differs from the female in having the fifth abdominal segment black, and in the absence of the white base to the hinder tarsi.

I have not observed the act of ovipositing, but in the month of August I found some eggs on a rose-leaf stowed away in little bags on the leaf, the skin on both sides of these little bags being brown. From these eggs proceeded little caterpillars of a gray colour, with black heads (see fig. 9 *b*); they ate holes from the under side of the leaves to the upper, and, both in appearance and the manner in which they lay rolled up, entirely agreed with the larvæ just described. I left them in the open air, where they were unfortunately washed off or killed by the rain and wind. I conclude these little larvæ were those of our species, and have therefore given a figure of them on this plate. The claws of this insect are remarkable; one is represented at fig. 10: they consist of three moderate-sized crooked and rather blunt teeth, united together into a sort of comb. Each foot has two such diverging little combs.

Notes on Aphides. By FRANCIS WALKER, Esq., F.L.S.

(Continued from Zool. S. S. 1333).

Myzus Cerasi (S. S. 1121).—The male of this species appears in October. It is black; the antennæ are much longer than the body, and the joints except the seventh are slightly incrassated; the nectaries are nearly one-fourth of the length of the body; the legs are long and slender; the femora and tibiæ dark green, black towards the tips; the wings are twice the length of the body, the stigma black.

M. Persicæ (S. S. 1121).—I wish to call attention to the characters by which Passerini distinguishes *Myzus Persicæ*, *Passerini*, from *Aphis Persicæ*, *Fonscolombe*. The latter abounds on peach trees in England. The antennæ on a frontal tubercle distinguish *Myzus* from *Aphis*.

M. Lychnidis (S. S. 1122).—It is remarkably abundant in the Channel Isles, and I have also found it in the Isle of Man. Passerini mentions two species of *Aphidinx* that infest the *Lychnis*; I have only observed one in England.

M. Oxycanthæ (S. S. 1122).—It appears in July, and the following description refers to the apterous female. Pale green, shining, nearly elliptical, very finely

punctured. Antennæ longer than the body; tips of joints black. Nectaries about one-fifth of the length of the body, converging towards each other. Legs long, slender; tarsi and tips of femora and of tibiæ blackish. Length $\frac{2}{3}$ line.

M. Ribis (S. S. 1122).—This species is more widely different from *M. Cerasi*, the type of *Myzus*, than the latter is from the genus *Aphis* as it is now limited. A new generic name is therefore required for it. It is the common *Aphis* of the red currant, which, like the black currant and the gooseberry, is also infested by the three following species:—

1. *Rhopalosiphum Lactuæ* (S. S. 1118). *Aphis Lactuæ*, *Kaltenbach*; *Rhopalosiphum Ribis*, *Koch*.—Koch refers to this species the *Aphis Ribis* of Linné, of Schrank and of *Kaltenbach*.
2. *Aphis Ribicola*, *Kaltenbach*. This and the following species have not hitherto been recorded as British. It should be transferred to the genus *Myzus*.
3. *Aphis Grossulariæ*, *Kaltenbach*. In 1869 I found this species in abundance.

Koch correctly mentions his *Siphonophora Ribicola* as the *Aphis Ribis* of Linné, of Frisch and of Fabricius, but it is also the *Aphis Ribis* of *Kaltenbach*, and not the *A. Ribicola* of that author.

M. Mahaleb (S. S. 1122).—The sloe is certainly the permanent habitation of *Phorodon Humuli*, and I still believe that the latter is *Aphis Mahaleb*, *Fonsc.*, though *Passerini* states that it is not so.

Hyalopterus Pruni (S. S. 1123).—This is one of the species whose history is yet incomplete, notwithstanding the excessive abundance in which it occurs. *H. tetra-rhoda* may be removed from this genus, which is connected by some intermediate forms with *Atheroides*, but has most affinity to *Phorodon*.

Aphis Saliceti (S. S. 1296).—No English description of this species has yet been published. It occurs occasionally in large swarms on the shoots of the willow, and is remarkable on account of the various colours which it assumes. It often has an orange hue.

A. Cardui (S. S. 1297).—It is more allied to the genus *Myzus* than to *Aphis*; and is less abundant than many species, and no English description of it has yet been published. *Apterous female*.—Green, oval, very plump and shining, with slight black bands. Antennæ slender, whitish, blackish towards the tips, much shorter than the body. Abdomen wholly black, except towards the base. Nectaries black, about one-eighth of the length of the body. Legs whitish; femora, tarsi and tips of tibiæ black. *Var.*—Body wholly black. *Winged female*.—Black. Antennæ very much shorter than the body. Abdomen green, with black bands. Nectaries black, about one-fifth of the length of the body. Tail rather long. Legs green; femora towards the tips and tarsi black. *Var.?*—On *Senecio Jacobææ*. Pale red, or with the disk of the body shining black. Nectaries not more than one-tenth of the length of the body.

A. Sedi (S. S. 1297).—This is a very small species and not of frequent occurrence. I have considered it and many others that have been described by different names as variations of *A. Rumicis*. Nearly all the migratory species of *Aphidinae* are definite in their selection of plants for their new habitation, but *A. Rumicis* in the winged form is extremely indiscriminate as to where it alights and multiplies. Sometimes the offspring perish quickly, sometimes they linger for awhile; in other instances they thrive more or less and are altered by their food, but their existence does not pass into

the male nor into the oviparous female, and therefore they cannot be considered as true species. Many volumes might be written on the migrations and settlements and consequent variations that occur.

A. Hederæ (S. S. 1298).—Kaltenbach, who first characterized *A. Hederæ* and *A. Ilicis*, suggests that they may be varieties of one species, and I have been unable to detect any permanent difference between them, and accordingly consider them as one species. I have tied a twig of ivy covered with Aphides to a shoot of holly: the Aphides crawled from the ivy to the holly; they did not feed there, and soon passed away. This might be expected, for the apterous form of *Aphis*, as the genus is now restricted, never moves from the spot where it feeds until its food withers, and then it perishes. The winged form hardly feeds after it migrates.

A. Sambuci (S. S. 1298).—Passerini cites this species as the type of the genus *Aphis* as it is restricted by him. Some of the species which he enumerates should be excluded from it, and it comprises very numerous closely-allied species, or, it may be, forms whose respective differences are occasioned by their food. The oviposition of *A. Sambuci* has not yet been observed. It is especially remarkable on account of the suddenness of its appearance on the elder, and on account of its rapid increase. Its profusion in 1869 exceeded that of every preceding year in which I have observed it. It sometimes occurs with a pale green hue, very convex, and with nectaries not more than half the usual length. Two variations of its structure are here briefly mentioned. *First*.—Oval, bluish green. Antennæ less than half the length of the body. Nectaries comparatively short. Legs rather short. *Second*.—Triangular, widening from the head to the tip of the abdomen, which is almost truncated. The larva of an *Agromyza* sometimes devours *A. Sambuci*, and may be the same species that is much more destructive to *A. Symphiti*.

A. Laburni (S. S. 1298).—It generally looks very different from *A. Rumicis*, but the gradations of size and colour in the dark-coloured individuals of this genus are very numerous. In 1869 it appeared in excessive numbers. *Apterous female*.—Black, uniformly covered with white tomentum. Antennæ white, black at the base and towards the tips. Nectaries about twice the length of the tail. Legs white; femora black, white at the base; tarsi and tips of tibiæ black.

A. Papaveris (S. S. 1298).—A distinct difference should have a definite name, whether it be termed a species or a variety, but there is no determinate difference between *A. Papaveris* and *A. Rumicis*, and I believe that many so-called species and *A. Rumicis* will be found to have a common annual origin.

A. Rumicis (S. S. 1298).—An *Aphis* that occurs on the Guelder rose (*Viburnum Opulus*), in July, is quite distinct from *A. Viburni* and may be referred to this species, and the following description refers to the apterous female:—Dark green; disk rather paler. Antennæ white, more than half the length of the body, black at the base and for half the length from the tips. Nectaries a little longer than the tail, about one-tenth of the length of the body. Legs white; femora except the base, tarsi and tips of tibiæ black. Length $\frac{1}{2}$ line.

The following description refers to an *Aphis* that feeds on the leaves of the vegetable marrow, and is probably a variety of *A. Rumicis*:—July. *Apterous oviparous female*.—Oval, dull, rather dark green, mottled with paler green, one-third of a line in length. Antennæ pale green, a little more than half the length of the body. Nectaries black, about one-sixth of the body. Tail short. Legs pale green, rather

short; tips of the tibiæ and of the tarsi black. September.—Most of the Aphides black; some green, mottled with darker hue; some pale green or pale yellow, with black nectaries, which are shorter than those of the normal form; their bodies also are more globose. The offspring of the last-mentioned variety are generally but not always dingy, and unlike it in colour. In October it is much more numerous, and of all colours from pale green or yellow; the young are often reddish green. The winged females have a black offspring. Towards the end of October nearly all the Aphides were dark green; a few were pale green, and the winged male paired with the latter. In November all were dark green. In August some occurred of a dark green colour, with transverse white streaks on each side of the body, and with black nectaries.

A. Genistæ (S. S. 1298).—I believe that this and *A. Laburni* are identical, though the latter is more shining, especially in the disk of the body. A much smaller Aphid that dwells on the furze may be termed *A. Ulicis*. It is sometimes like *A. Laburni* in colour, sometimes like *A. Rumicis*.

A. Euphorbiæ (S. S. 1298).—The Aphid that occurs on the Spurge in England seems to be a variety of *A. Rumicis*. The apterous female is black and dull. Antennæ white, black towards the tips. Legs white; tarsi black. The nectaries are shorter than those of *A. Laburni* and of *A. Genistæ*, and it does not equal the former in size.

A. terricola (S. S. 1299).—This species and *A. terricola* described by me live under ground in the apterous state. The latter species feeds on the root of the parsnip, and it occurs at the depth of one foot beneath the surface of the ground, to which it crawls when it is about to assume the winged state.

Siphocoryne Fœniculi (S. S. 1300).—It abounds on fennel in gardens, and is smaller than *S. Caprææ*, which it much resembles, and these two species may constitute a new genus, being very different in structure from *S. Xylostei*, the type of *Siphocoryne*.

Myzocallis Quercus (S. S. 1300).—This species appeared in unusual abundance during the summer of 1869. It is one of the few species of Aphididæ that I observed in the Channel Isles and in the Isle of Man. The genus *Myzocallis* should be restricted to *M. Quercus*, *M. Quercea* and *M. Coryli*. *M. Ononidis* is the type of a new genus, which I have named *Therioaphis*.

Chaitophorus salicivora (S. S. 1300).—The winged form of this species occurs in Italy, but I have never found it in this country. It chiefly abounds in the autumn, and varies in colour, being pale yellow or pale green, with brighter marks. The male and the oviparous female appear in October; the former is hardly more than one-fourth of the size of the latter, and is distinguished by a stripe of brown and black streaks. It is very different in structure from *C. Aceris*, which is the type of *Chaitophorus*, and will form a new genus, which I have named *Tranaphis*.

Chaitophorus Aceris (S. S. 1300).—*C. Acericola* is probably an especially southern form of *C. Aceris*. Some examples of it occurred in a year that was very favourable to the development of Aphididæ. At Interlaken, in Switzerland, it was generally prevalent to the exclusion of *C. Aceris*. The latter is remarkable on account of the widely different forms which it assumes, and also on account of the suspension of growth in the young of the third generation. The normal form appears in the early part of the year and also in July, and with it in the latter month I have observed on the same leaf the little flat form with laminæ round the abdomen. The variations

of this species are noticed in the 'Zoological Record' for 1867, page 482, and I believe that *Aphis perforatus*, *Signoret*, referred to in the same work (p. 483) is one of the modifications of *C. Aceris*.

Chaitophorus Populi (S. S. 1301).—I have proposed the generic name *Arctaphis* for this species, which differs much from *C. Aceris* in structure.

Pterocallis Alni (S. S. 1301).—It is of frequent occurrence in the Isle of Man. *P. Tiliæ* is the type of Koch's genus *Callipterus*, which, with *Myzocallis*, *Pterocallis*, *Therioaphis* and *Agrioaphis*, forms a group in the Aphidina. *Aphis Myricæ*, *Kaltenbach*, is the type of my genus *Agrioaphis*. In addition to *C. Tiliæ* the lime is infested by the following insects. The galls on the twigs of the lime (formed by *Cecidomyia Tiliæ*) and the mites that infest the leaves are very variable in their appearance. The mites are *Tetranychus socius* (*Koch, Acariden, &c.*, 17, 16; *Trombidium socium*, *Hermann, Mém. Apt.* 43, 26, pl. 2, f. 13), and *T. tiliarum* (*Koch, Acariden*, 17, 13; *Trombidium tiliarum*, *Hermann, Mém. Apt.* 42, 25, pl. 2, f. 12). The former is wholly yellow; the latter is very pale yellow, pale green along each side and with some black marks. They are nearly allied to the mite that infests the leaves of the currant.*

Trama and *Paracletus* (S. S. 1301).—These two genera are composed of subterranean species, and may be placed more naturally with the *Rhizobinæ*.

Sipha Glyceria (S. S. 1328).—This is the type of the genus *Sipha* and has been hitherto included in *Atheroides*, *Haliday*. *A. serrulatus* is the type of the latter, and both genera should be transferred from the *Lachninæ* to the *Aphidina*.

Lachnus Quercus (S. S. 1329).—This is the type of my genus *Stomaphis*. Unlike most species of *Aphididæ* it is very limited in numbers and in the spots where it occurs. It has been observed, though rarely, in Surrey, Kent, Essex and Middlesex, and I have found it on "Turpin's Oak," near Finchley. It does not seem to be attacked by parasites, and it lives securely in the deep recesses of the oak bark, where its long rostrum, which it can extend or retract, enables it to feed on the sap. It is thus always provided with food except in the winter, and, unlike the migratory *Aphididæ*, does not need a new abode, and accordingly very seldom assumes the winged state. The latter form appears in spring, and, like the male, has no long rostrum, and the migration at this early period allows time for the settlement in a new habitation before the development of the oviparous generation when the wingless male also appears.

Lachnus Piceæ, *Panz.*—It is less regular in its appearance than the other English *Lachni* that feed on the fir tribe, and occurs only now and then near London. It is especially an arctic species and has been taken very far north in the polar regions. I have found it on the Grimsel, and I observed many specimens of it on the Mer de Glace. It is the *Dryobius riparius* of *Snellen van Vollenhoven*.

Callipterus Juglandis (S. S. 1329).—The genus *Callipterus* may be restricted to *C. Tiliæ* before mentioned, and the two species included in it by *Passerini* belong to two widely different genera; the first is one of the *Lachninæ*, the second one of the *Aphidina*. *C. Juglandis*, for which I propose the generic name *Callaphis*, lives on the upper surface of the leaf in masses along the midrib. Like the genus *Cladobius* it seems to connect the *Lachninæ* with the *Aphidina*. *C. Juglandicola*, which I have

* *Trombidium telarium*, *Hermann, M. A.* 40, 24, pl. 2, f. 15. *Tetranychus telarius*, *Koch, Acariden*, 17, 12.

named *Chromaphis peglandicola* live scattered on the under surface of the leaf like the species of *Myzocallis*.

Pterochlorus (S. S. 1329).—This genus follows *Stomaphis* and is Koch's *Dryobius*, and the latter name has the precedence. There are only two species known, *D. roboris* and *D. longipes*, the former a native of North Europe and the latter of South Europe. The slight difference between them may have been the effect of climate.

Phyllaphis Fagi (S. S. 1329).—The genus of which it is the only representative should be removed from the *Lachuinæ*. The latter may be generally separated from the *Aphidinæ* by the greater length of the rostrum in proportion to the body, a character which also distinguishes the early age of the *Aphidina* from their final state. *Phyllaphis* may perhaps be associated with *Drepanosiphum*, *Eucерaphis* and *Monaphis* as a group of *Aphidinæ*.

Eucерaphis, Walk. Type *A. Betulæ*, Linn.—*Aphis punctipennis* (*Zetterstedt, Ins. Lapp. i. 2, 311*) belongs to this genus. It feeds on the birch and on the alder, and inhabits Lapland and Greenland. I have found it on the alder at Chamouni.

Monaphis, Walk. Type *A. antennata*, *Kaltenbach*. This genus is most allied to *Eucерaphis*, but its peculiar structure sufficiently distinguishes it. The scarcity of its occurrence and its solitary habits are in remarkable contrast to the generality of the *Aphididæ*.

Schizoneura lanigera (S. S. 1330).—It is generally limited to the trunk and branches of apple-trees, but it sometimes occurs in abundance on the young shoots. It is the American blight about which much has been written and for which many remedies have been proposed.

Pemphigus (S. S. 1330).—Passerini describes many new species of this genus and distinguishes them by the difference in the length of the joints of the antennæ. In the *Aphidinæ* this character is occasionally variable in individuals of one species.

Vacuna dryophila (S. S. 1332).—Thelaxes has the right of priority as a generic name for this species, and the genus *Vacuna* may be restricted to *V. Alni*. *V. dryophila* appeared more abundantly than usual in 1869 near London, and I also observed it in the Isle of Man.

Vacuna Alni (S. S. 1332).—Until I saw Passerini's work I was not aware that this species fed on the alder as well as on the birch. I have since found it in abundance on the alder at Chamouni, but in England I have only observed it on the birch. It is the *Aphis Alni* of Schrank, the *Vacuna Betulæ* of *Kaltenbach*, and the *Glyphina Betulæ* of Koch.

Chermes Abietis (S. S. 1333).—The winged form is developed in the middle of August, and is then abundant on the spruce fir. The natural history of the species of this genus is very interesting and has been only slightly noticed in English publications.

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The Nest of the Crocodile. By the Rev. BANCROFT BOAKE,
Vice-President of the Royal Asiatic Society.

[The following paper appears in the Journal of the Ceylon Branch of the Royal Asiatic Society. The information is highly interesting, and if any of my readers who have been in India can make any addition to the information it contains I shall be much obliged.—*Edward Newman.*]

THE favourite haunts of crocodiles being but seldom visited, in consequence of the insalubrity of the localities in which they are generally to be found, and of the dangerous character of their inhabitants, the habits of these animals are very imperfectly known. The following account of two nests, which were recently found within a few miles of Colombo, may therefore be interesting to naturalists.

The first of these nests was discovered by Mr. Symonds, of the Survey Department, who found it to contain about one hundred and fifty eggs, which he removed, not without considerable risk, having been repeatedly charged by the old crocodile who was guarding them.

My curiosity having been excited by the description which I received of the nest from Mr. Symonds, I went to examine it myself. I found it amongst the bushes on the swampy bank of the Bolgodde lake, at a distance of a few feet from the water.

The nest itself consisted of wet vegetable matter mixed with mud, and was raised to the height of between three and four feet, presenting in shape very much the appearance of a small conical haycock, but in colour and consistency that of a heap of dung. Round the base of the cone was a circular trench more than three feet broad, and about two feet deep, in which the old crocodile was wont to wallow while watching her nest. The circle inclosed by this trench, the whole of which was covered by the base of the nest, was between six and seven feet in diameter.

I am not aware that these conical nests have been previously noticed.

The eggs are placed at a height of at least two feet above the surface of the water; and, although the nests in Ceylon are principally composed of aquatic weeds in a wet state, which might be expected to give out considerable heat in fermenting, yet I do not believe that any artificial heat is required to hatch the eggs, because several eggs, which were procured from the Bolgodde nests, were hatched in my

house, being merely deposited in earth which was kept damp and exposed to the rays of the sun.

While examining the nest which had been discovered by Mr. Symonds, we were told by some natives who accompanied us that there was another nest, within a mile or two of the spot, which had not yet been disturbed.

On visiting this second nest, we found it in all respects very like the first, except that it was not so large, and that, besides the trench which surrounded it, there were one or two holes in the swamp in which the natives said that the old crocodile was accustomed to lie.

Warned by the narrow escape which Mr. Symonds had when examining the first nest, we approached very cautiously, expecting an attack every moment; and when we were all assembled on the edge of the trench surrounding the nest, we hesitated to cross it, because it was when he was in the act of stepping across the trench that Mr. Symonds was first attacked by the other crocodile, which raised its formidable jaws directly beneath him, and would no doubt have effectually put a stop to his proceedings, had he not promptly discharged the contents of his fowling-piece down her throat. This shot was not, however, fatal; for Mr. Symonds was subsequently charged twice by, as he believes, the same crocodile. On finding, however, that no crocodile appeared, our confidence returned; and at length one of our number ventured to approach near enough to remove the top of the nest, and to take away the eggs, of which he procured twenty-five.

On my expressing astonishment at the pacific conduct of the parent crocodile, and suggesting that it was probably absent in pursuit of food, the natives who were with us expressed their conviction that it was at that moment in the trench, but that it was of a different *caste* from the first. Further inquiries have satisfied me that this belief in the existence of two different species, or, as the natives call them, *castes*, of crocodiles, is universal in the country; and Dr. J. Anderson, of the Indian Museum, Calcutta, informs me that a similar belief prevails in Bengal respecting the mugger, which closely resembles the crocodile of Ceylon, if it be not identical with it. One *caste* is said to confine itself to a fish diet, while the other attacks human beings.

The former, called by the Sinhalese 'Elle Kimbola,' or gray crocodile, grows to a larger size than the more savage species, and is said to be that which is found about Kornegalle. As I have two thriving specimens, hatched from the eggs of the crocodile which attacked Mr.

Symonds, and am promised one of the progeny of that which submitted so quietly to the plundering of its nest in my presence, I hope that I shall be able to ascertain, by the aid of some eminent English naturalist, whether they belong to the same or to two different species. At present they present no difference in appearance that an unscientific eye can detect.

I may mention that there is some difficulty in bringing up young crocodiles by hand, as they obstinately refuse every kind of food that I have ever presented to them. One, which was brought to me some years ago, died of inanition, although, for a week or ten days that it was in my possession, I constantly tempted it with both flesh and fish. Those which I now have I feed by forcing bits of raw meat down their throats with a stick, two or three times a week. Under this treatment they seem to thrive, having about doubled in size since they left the egg; but the operation is not a pleasant one, and requires some dexterity, as their teeth are exceedingly sharp, and they lose no opportunity of turning upon the hand that feeds them.

Extracts from a Memoir intituled 'A Monograph of the Alcidæ.'
By ELLIOT COUES, A.M., M.D.

[This admirable memoir was published in the 'Proceedings of the Academy of Natural Sciences of Philadelphia' in 1868, more than a year ago, but its interest is enduring, and as very few in this country ever see the works in question, I am confident that the extracts I am about to make will be acceptable to the readers of the 'Zoologist.' The first section of the memoir is confined entirely to authorities, I therefore commence with the second.—*Edward Newman.*]

OF THE CHARACTERS OF THE FAMILY, AND ITS SUBDIVISIONS.

THE auks form a very natural family of birds, distinguished by marked and unmistakable characters from any other. With a single exception,* there is no bird found to present in any notable degree a leaning towards the peculiarities of the Alcidæ; and the members of the family, without exception, preserve intact those characters which define the group so technically, showing in no single instance a tendency to aberration. The rigidness with which it is possible to circumscribe the Alcidæ is in the highest degree satisfactory, in a

* The genus *Pelecanoides*, of the Halodrominæ (*Procellariidæ*), in all details of external form, except those of the bill, is essentially like *Mergulus*.

class of animals in which the recognition and definition of subordinate groups is peculiarly difficult.

The natural place of the family in our ornithotaxis appears as definite as the characters which separate its forms from other birds. By common consent, the Alcidæ are regarded as next to the lowest of birds. The degradation of the type or ideal bird which the auks represent is only carried further in one family—the Spheniscidæ. From the latter, which is at the bottom of the scale, we ascend one step to Alcidæ; another brings us to the Colymbidæ and Podicipidæ. These four families constitute the order Pygopodes, or the Brachypterous Natatores. The position occupied by the auks in this order is so evident as not to admit of question.

It is only necessary to allude to the wings of the Spheniscidæ, without dwelling upon the point, to separate this family from the auks. The tetradactylous feet of the other two families distinguish them with equal facility. Auks are brachypterous, brachyurous, tridactylous Natatores, with lateral nostrils. This expression is a perfect diagnosis.

The auks are confined to the northern hemisphere. Some representatives have been found as far north as explorers have penetrated. The great majority live in more temperate latitudes. A more or less complete migration takes place with most species, which stray southward, sometimes to a considerable distance, in the autumn, and return north again to breed in the spring. A few species appear nearly stationary. The most southern recorded habitat of any member of the family is about latitude 21° N., on the Pacific coast of North America, but this is rather exceptional. The species are very unequally divided between the two oceans. The Atlantic has but few representatives compared with the Pacific. On the northern coasts of the latter the family reaches its highest development: the greatest number of species, of the most diversified forms, are found there, though the number of individuals of any species does not surpass that of several Atlantic species. Comparatively few species are common to both oceans. All the members of the family are exclusively marine.* They are decidedly gregarious, particularly in the breeding season, when some species congregate in countless numbers. Usually one, often two, rarely if ever three eggs are laid, either upon the bare rock or ground, or in crevices between or under rocks, or in burrows

* *Uria grylle* is found on the southern shores of Hudson's Bay; but this fact can hardly furnish an exception to the statement.

excavated for the purpose. Auks are all altrices, and are believed to be chiefly monogamous. The young are at first covered with long soft woolly down; rarely stiffish hairs appear on some parts. The moult is double. The young of the year usually differ from the adults; the latter usually differ in their summer and winter plumages. A very prevalent feature is the possession of crests or plumes, or elongated feathers of a peculiar shape on the sides of the head. All the species walk badly; some scarcely walk at all. The position of the legs with reference to the axis of the body necessitates an upright position when standing. The birds appear to rest on their rumps, with the feet extended horizontally before them, most of the tarsus touching the ground. The puffins, however, and a few others, stand well on their feet. All the species but one fly well, with rapid vigorous motion of the wings, in a straight, firm, well-sustained course. All progress on or under the water with the utmost facility. They are very silent birds; the voice is rough and harsh; the notes are monotoned. They feed exclusively upon animal substances procured from the water.

The uniformity of structure which obtains throughout the family has already been mentioned: the following paragraphs describe this structure in a general way, so far as the details of external form are concerned:*

The general form is stout, compact and heavy. The body is depressed, flattened underneath. The neck is short and thick. The head is large and heavy, usually oval in shape, more or less flattened laterally, more or less drawn out anteriorly, and sloping gradually on all sides to the bill, but sometimes ending abruptly. The plumage about the head is very soft, dense, and short, except those feathers which constitute the peculiar crest or lateral plumes already mentioned. That of the upper parts is very closely imbricated; that of the lower is very thick, compact, elastic and otherwise eminently fitted to resist the action of water.†

The bill, though constantly preserving certain characteristics, varies to a remarkable degree in the details of its shape. The broad statement may be made, that no two species‡ of the family have bills identical in shape. So unending is the variation in the bill, that in

* The writer hopes to bring forward, at some future time, a memoir on the anatomy of the family.

† Cf. Nitzsch's Pterylography for pterylosis of *Utamania torda*.

‡ Is *Uria ringvia* specifically distinct from *U. troile*?

some cases great differences in shape seem of scarcely more than specific consequence, as is especially the case in the genus *Simorhynchus*. The bill in the great majority of species is more or less compressed, sometimes excessively so; it is frequently, however, nearly as wide as high at the base, and more or less subulate. The contour of the bill in many instances deviates from an ordinary standard so much that the shape may almost be called monstrous. A striking peculiarity of the bill in several genera is the presence of supernumerary elements or accessory pieces, taking the form of salient protuberances. These are usually developed on the culmen; in one instance on the gonys; in one at the angle of the rictus; in several along the feathered base of the bill. Besides these appendages, there are often found grooves and ridges on the sides of one or both mandibles. The culmen is always more or less convex; in one instance it is bi-convex. The tomial edges of the mandibles are more or less sinuate: sometimes nearly straight; usually decurved at the tip, and slightly notched; in one instance recurved. The rictus is ample.* The mandibular rami approach each other with a very narrow angle, and soon join, producing a long gonys, which is usually nearly straight. One genus has a very convex gonys; in two others the gonys runs the whole length of the bill, there being no mandibular rami proper. The bill is entirely horny, except in two species, in which a soft membrane overlaps the base of the upper mandible; and in a third, where a peculiar knob is not strictly corneous.

The nostrils are basal, lateral, marginal, impervious; usually linear, or narrowly oval; in a few instances placed further from the commissural edge of the upper mandible, and nearly circular. The nasal fossæ are usually very evident; are sometimes hidden by feathers; at others are wholly wanting. The extension of the feathers into the nasal fossæ varies in degree, when it occurs. In just about half the species the nostrils are naked; these usually have no true nasal fossæ. In the other half fossæ occur; entirely obtected by feathers in three genera; partially covered in the rest. The significance of these features will receive further attention below.

The wings are short. In no instance do they, when folded, reach to the end of the tail. In one species they are so undeveloped in their

* In two genera, in which the excessive compression of the bill produces a very constricted rictus, its amplification is provided for by means of a dilatible skin at the angle of the mouth.

terminal segments* that the power of flight is abrogated. The first primary is always longest; the rest rapidly and regularly graduated; all taper to a sufficiently fine point. The secondaries are very short, and broadly rounded. The primary coverts are very long, reaching much more than half-way from the carpus to the end of the first primary. The first row of secondary coverts reach nearly to the end of the secondaries. The under wing-coverts are very long. The axillars are short or wanting. The wing as a whole is convex above, concave below, narrow, sharp, stiff, somewhat falcate. These points of structure are constant throughout the family.

The tail is very short; its length is contained, on an average, about three times in the length of wing from the carpal joint. It is usually slightly rounded, sometimes nearly square, in a few instances pointed; in a few more the central rectrices are slightly shorter than the next pair. The individual feathers are usually very obtuse at the end. Both sets of coverts are long; the inferior usually reach nearly or quite to the end of the tail.

The feet are small, and placed far back, as has been said. The thighs are contained within the general skin of the body. The legs are feathered nearly or quite to the tibio-tarsal joint. The tarsus is short, sometimes excessively abbreviated, rarely equal to the middle toe without its claw, never (?†) longer. It is usually much compressed, is sometimes almost as sharp as that of *Colymbus*, is frequently nearly as broad laterally as antero-posteriorly. Its covering varies with different genera. It is usually reticulate behind and laterally, with a row of scutellæ in front, which rarely, however, if ever, extend its whole length. In some genera it is entirely reticulate; in others, the scutellation extends on one or both sides. The tarsal envelope varies so much that it is not available as a character for subdivisions higher than generic. The toes are very long; the outer and middle always of nearly the same length; the inner shorter, its claw just reaching the base of the middle claw. There is no hind toe. Dissection reveals the rudiment of a hallux, which, however, is never developed sufficiently to make even a well-marked prominence. The webbing of the toes is complete. The claws are all moderately arched,

* *Cf.* Mr. A. Newton's article in the 'Ibis' for October, 1862. As there stated, the humerus of *Alca impennis* is of normal size; the antibrachium, carpus and metacarpus, and their quills, are shortened.

† *Brachyrhamphus brachypterus* is said by Brandt to have the tarsus longer than the middle toe.

compressed and acute; the inner edge of the middle is more or less dilated; the middle is always the largest, except in two genera, which present the peculiarity of having a very large semi-circular inner lateral claw, which, moreover, lies horizontally instead of vertically.

That rigid adherence to the type of structure just described which all the species maintain, while facilitating the recognition of the family as a family, is a serious obstacle in the way of defining its subdivisions with precision. With no very abrupt transition from one form to another, and without any very marked modification of general features, the minor groups seem to be formed mainly by the varying combination of the few differences in structure which obtain in the family. The assemblage of characters, rather than the presence or absence of particular features, in most cases determines the genera; and no two species are absolutely alike in all points of form.

——— “*Facies non omnibus una,
Nec diversa tamen, qualis decet esse sororum.*”

In one of the ablest papers that has appeared upon this subject, Professor Brandt divides the Alcidae into two subfamilies—those with feathered and those with naked nostrils. In this arrangement the guillemots stand next to the typical auk (*A. torda*). Viewed from any other standpoint the two forms appear to represent the extremes of structure in the family; particularly in regard to the bill, cultriform in one, subulate in the other. The two types are by most authors placed at opposite ends of the generic chain, and separated by all the *Starikis*. Attentive consideration of all the bearings of the case may very likely result in the opinion, held by the present writer, that the difference between the views of Professor Brandt and other writers is rather apparent than real. It should be borne in mind that the Alcidae are a family very rigidly circumscribed, and one showing no tendency to aberration, or to connect itself ultimately with the families standing next to it on either side. Whether as cause or consequence of this, the fact is indisputable, that the genera of Alcidae are not strung along in a chain whose ends seem, as it were, to be linked with the genera of other families: they tend, on the contrary, to aggregation in a circle about a common centre. We may take any genus,—it matters not which,—we shall find its closest ally to the right and to the left; and the circuit shall be complete when all the genera have been considered. To illustrate this point, Prof. Brandt, like all other writers, takes the typical *Alca* as his starting point.

With the feathering of the nostrils as a fundamental feature; *Uria* and its subdivisions must come next, then *Brachyrhamphus*; this leading through *Mergulus* into the true Phaleridines, by means of *Ptychoramphus*. Beginning with those Phaleridines with the simplest bills, he progresses to those with more complex bills, ending with *Ombria*, which last, through *Cerorhina*, conducts to *Fratercula*, which ends the series. There is nothing strained or forced in this; the succession of the genera is perfectly natural. But it so happens that *Fratercula* is as closely, or even more closely, allied to *Alca* proper than *Uria* is. We cannot disturb in any essential degree the generic series of Prof. Brandt, but we could with entire propriety go directly from *Alca* to *Fratercula*, and thence backwards over the same track, ending with *Uria*, which would then be at the opposite extreme of the series. It is asserted, without fear of reasonable contradiction, that to begin anywhere in this natural series of genera, and progress through it, is to be brought back to the starting point.

It is not, perhaps, possible to divide this generic circle without the exercise of some arbitrary jurisdiction. If there be included in it two or more subfamilies capable of precise definition, the fact has eluded the writer's research. There are, however, in the series two places where a dividing line may be drawn. Prof. Brandt drew but one, relying upon the single character which he found to apply so well, albeit it may be an arbitrary one. Other writers have made likewise but two subfamilies, differently framed, however; the *Alcinæ*, including the true auks, together with the Phaleridine forms, united because of their short, stout, high bills; and the *Urinæ*, separated on the ground of their long, slender, subulate bills. Others again, particularly Mr. G. R. Gray and Prince Bonaparte, have drawn two lines, recognizing three subfamilies; and this course seems to be the one that holds closest to nature, provided the family be really susceptible of subdivisions higher than generic. By simply reducing Prof. Brandt's fundamental character to the level of one drawn from the general structure of the bill, three subfamilies stand forth with tolerable distinctness. The *Alcinæ* have feathered nostrils and cultriform bills; the Phaleridinæ naked nostrils and cultriform bills; the *Urinæ* feathered nostrils and subulate bills. This certainly appears to be a distinction with a difference, and will be so held in the present paper.

The arrangement of the *Alcidæ* here submitted is a modification of Prof. Brandt's, providing for the recognition of three in place of two

subfamilies. In this particular it is substantially the same as Mr. Gray's, but the sequence of the genera is entirely different, and is nearly that of the first-mentioned author. Beginning with typical *Alca* it passes to *Fratercula*, and ends with *Lomvia*, instead of passing to *Lomvia* and ending with *Fratercula*. But in either case the collocation of the genera is essentially the same. It is believed that this sequence of genera cannot be broken in upon to any considerable degree, without the rupture of a natural series as a consequence.

DESCRIPTIONS OF GENERA AND SPECIES.

Subfamily ALCINÆ.—ALCA, *Linnaeus*.

Size largest in the family. Form heavy, compact, robust. Head large, ovate, produced forwards. Neck moderately long, thick. Wings morphologically perfect, teleologically rudimental, not admitting of flight, in length from carpal joint to end of longest primary scarcely twice as long as tail; when folded not reaching the tail. Tail short, pointed. Legs short and stout. Webs broad and full. Tarsi compressed; their anterior ridge and superior surfaces of toes scutellate, lateral and posterior aspects reticulate, the plates on the latter very small. Tibiæ feathered nearly to the joint. Bill about as long as the head, large, strong, very deep, exceedingly compressed. Upper mandible with culmen about straight for half its length, then regularly convex, tip obtuse, declinate, scarcely overhanging; a deep groove on its side at base, parallel with the outline of feathers; its side then perfectly smooth for a space, then deeply impressed with six to ten oblique curved sulci. Gape very large, running far back; line of commissure nearly following that of culmen. Eminentia symphysis slight; gonys nearly straight. Lower mandible two-thirds as deep as upper, its sides impressed with six to ten straight, vertical sulci. Feathers about base of mandibles short, very compact, extending downwards from base of culmen, a little forwards, to commissural edge of upper mandible; reaching much further on sides of lower mandible; wholly covering the moderately long, very narrowly linear, impervious nostrils, which are situated just above the commissure.

It is unnecessary to compare this genus with any other. *Utamania*, most closely allied, is at once distinguished by its teleologically perfect wings, though nearly identical with *Alca* in other points of structure. The only known representative of the genus is remarkable, both for its large size and for not possessing the power of flight, in consequence of which it may be said to represent, in the Northern Hemisphere, the

numerous penguins of the Southern. By many ornithologists it is believed to have very recently become nearly or quite extinct.

Rigid adherence to the law of priority would necessitate the use of a different name for this genus. "Alca" was first applied by Linnæus, in 1744, to the genus of which the bird now called *Fratercula* or *Mormon arcticus* is typical; and even as used by Linnæus in 1758 it has *torda* as its recognized type, according to that rule which regards the species first mentioned as type, when none is otherwise indicated; so that it cannot, with strict propriety, be used at all in this connection. But the name has become so firmly established by common consent and long usage that it would be ruthless, as well as profitless, to attempt its supercedure by *Chenalopex* of Moebring, 1752, particularly as this latter word has come into extensive employ for an Anserine genus. The genus *Alca*, as framed by Linnæus in 1758, included both *torda* and *impennis*; and when restricted, by the generic separation of these two types, there seems no good reason why the first mentioned should be regarded as more peculiarly typical of the genus than the last. Should *Alca* be reserved for *Fratercula artica*, or for *Utamania torda*, it will be apparent that numerous unwarrantable innovations necessarily follow, while its employ in connection with *impennis* entails no such consequences.

Alca impennis, Linn.—Description (from the specimen in the Philadelphia Academy):—The white spot between the eye and bill is ovate in shape, its upper border a little straightened, its small end towards, but not quite reaching, the bill, its large end extending to, but not around; the eye; the width of the black space between it and its fellow is rather more than half an inch. The back is dusky black; other dark-coloured parts with a good deal of clear brown, especially on the head. The under parts, including the tail-coverts, are white, this colour running far up on the front of the neck in a narrowly acute angle. The under wing-coverts are ashy gray. The secondaries are narrowly but distinctly tipped with white. The bill is deep black, its sulci dull white. The feet are dark, their precise colour at present undefinable.

Dimensions:—"Length about 30 inches;" wing 5·75; tail about 3·00; bill along gape 4·25; chord of culmen 3·15; greatest width of bill ·66; greatest depth of upper mandible 1·00, of lower ·66; tarsus 1·66; middle toe and claw 3·25; outer 3·00; inner 2·25.

The occurrence of this species on the coast of North America has not been authenticated of late years. Perhaps the last instance on

record is that given by Audubon on page 316 of the fourth volume of 'Ornithological Biography.' "The only authentic account of the occurrence of this bird on our coast that I possess was obtained from Mr. Henry Havell, brother of my engraver, who, when on his passage from New York to England, hooked a great auk on the banks of Newfoundland, in extremely boisterous weather." This specimen was not preserved. "When I was in Labrador," continues Audubon, "many of the fishermen assured me that the 'penguin,' as they name this bird, breeds on a low rocky island to the south-east of Newfoundland." The present writer received similar assurances when in Labrador in 1860—the place designated being the "Funks." Audubon also states that "an old gunner residing on Chelsea Beach, near Boston, told me that he well remembered the time when the penguins were plentiful about Nahant and some other islands in the bay."

Two specimens only are known to exist in any American museum. One is in the Philadelphia Academy; its history is uncertain. The other, in the Vassar College, at Poughkeepsie, New York, is the original of Audubon's plate and description, as stated in the following note from Prof. Sanborn Tenny, favoured in reply to questions regarding it: "The great auk, presented to Vassar College by J. P. Giraud, jun., Esq., is in a perfect state of preservation. This specimen is the one from which Audubon made his drawing, and it was presented to Giraud by Audubon himself. Neither Giraud nor myself has further knowledge of it than what is contained in Audubon's works."

Concerning Mr. Audubon's specimen, Mr. Cassin remarks (B. N. A. p. 901), that it was "obtained by him (Mr. A.) on the banks of Newfoundland;" upon which statement Mr. A. Newton (Ibis, Oct. 1862) observes, "In 1857 I was assured by Mr. Bell, the well-known taxidermist at New York, who knew Mr. Audubon intimately, that he never possessed but one specimen of this bird; and if we turn to Prof. Macgillivray's 'History of British Birds' (vol. v. p. 359), we find him saying that he never saw but two examples of the species, one in the British Museum, and 'the other belonging to Mr. Audubon, and *procured by him in London.*" This serves to throw some little light on the history of the specimen now in the Vassar College, Poughkeepsie, New York.

In the 'Annals and Magazine of Natural History' for 1864, p. 235, is given, by Mr. Robert Champley, "a list of the present possessors of the birds, skeletons and eggs of *Alca impennis*;" this gentleman

being cognizant of the existence of twenty-seven skins, six skeletons and fifty-three eggs. Dr. G. Hartlaub (Bericht üb. d. Leist. in d. Naturg. der Vögel for 1864) remarks upon this enumeration: "Es ist dieses Verzeichniss indessen sehr unvollständig. So z. B. geschicht des schönen Exemplares der Bremer Sammlung so wie des prachtvollen Ei's im Museum zu Oldenburg keine Erwähnung." Mr. A. Newton, on the subject of existing specimens, has (l. c.) the following: "If all the stories we received can be credited, the whole number would reach eighty-seven. I should imagine sixty to be about the real amount;" and again: "It is pretty evident that most of the specimens of the great auk and its eggs which now exist in collections were obtained from Eldey, between the years 1830 and 1844.*

Two eggs are contained in the Philadelphia Academy's collection.

UTAMANIA, *Leach.*

Size moderate; form stout, compact, heavy; head moderate, anteriorly produced, neck thick. Wings of moderate length, but fully developed, admitting of flight, reaching when folded beyond base of tail; more than twice as long as tail from carpal joint to end of longest primary. Tail rather short, pointed, of somewhat stiffened, acuminate feathers, of which the central pair are elongated and tapering. Legs short, stout; tibiæ bare for a short space above joint; tarsi compressed, anteriorly with a single row of scutellæ, posteriorly and laterally finely reticulate, shorter than the middle toe. Toes long, outer nearly equal to middle, inner much shorter; interdigital membranes broad and full; claws short, stout, obtuse. Bill about as long as head, densely feathered for half its length; feathers on upper mandible extending beyond middle of commissure, nearly as far as those on lower mandible. Bill greatly compressed, its sides flat, with several transverse sulci, its culmen ridge regularly convex; tip of upper mandible declinate, rather acute; its base encircled by a prominent ridge; gonys about straight; commissure straight to tip, then suddenly deflected. Nostrils just above cutting edge of bill, in its feathered portion, just posterior to basal ridge, impervious, narrowly linear.

* "Lists of these, which are in the main correct, though I know of a few that are omitted, have lately appeared in the 'Zoologist' for the present year [1862], pp. 7353 and 7386, and almost simultaneously in the 'Field' newspaper (Nos. 423 and 424, pp. 93, 114). Further remarks on them will be found in the former journal (pp. 7387 and 7438)."—*Newton, l. c.*

Comprising a single species, upon the varying plumages of which numerous nominal species were established by the earlier authors. The employ of the present name for the genus, instead of *Alca* of Linnæus, 1758, is perhaps defensible upon the grounds alluded to; although the reason for the non-acceptance by authors of Torda of Duméril as a generic designation is not apparent. It would be easy to find, among the synonyms of the species, a trivial name to replace Torda, should it become necessary to use this as a patronym.

Utamania torda (L.) Leach.—Habitat:—European and American coasts of the Atlantic, from the higher latitudes in summer, to the 40°, or thereabouts, in winter. Very abundant. Specimens in all the American museums, and most private collections. Breeds in great numbers on the islands in the Gulf of St. Lawrence, and on the coasts of Labrador and Newfoundland; in winter strays south to New Jersey. Arctic seas of both hemispheres. Rare, or accidental in the North Pacific. Japan! (Schlegel, Mus. Pays-Bas.)

Adult, in summer.—Iris bluish. Mouth chrome-yellow. Bill, feet and claws black; the former with a conspicuous curved vertical white line occupying the middle sulcus of both mandibles, continuous from one to the other. A straight, narrow, very conspicuous white line from eye to base of culmen, composed of a series of very short stiff setaceous feathers, sunk below the middle of the others. Secondaries narrowly but distinctly tipped with white. Head and neck all around, and entire upper parts black; this on the sides of the head, chin and throat lustreless, velvety, tinged with fuliginous or brownish; on the upper parts glossy and more intense in colour. Inner webs of primaries light brownish gray at base. Entire under parts from the throat, including under surfaces of wings, white.

Adult, in winter:—Upper parts lighter, duller, more brownish black; the white of the under parts extending to the bill, and on the sides of the head and neck, sometimes quite to the nape.

Young, first winter:—Similar to the preceding; smaller, the bill weaker, shorter, less elevated, less decurved at the tip, the culmen, rictus and gonyes straighter, the sides of both mandibles smooth, except in the presence of one sulcus; bill brownish black, the sulcus white. Legs and feet reddish or brownish black.

Fledgelings:—Bill very small and slender; body clothed with smoky brown or black down, lighter, or tending more or less to grayish white below.

The white stripe from the eyes to the bill is very variable, though

present in the great majority of individuals. It always exists in the adults in summer plumage, but is sometimes absent in specimens, apparently perfectly adult, in winter plumage. Its presence does not seem to be amenable to any very general or constant law: since it may be very evident in very young birds, not yet fully fledged, and again absent in apparently mature specimens, as just stated. In winter specimens it is frequently interrupted and irregular, wanting the sharpness of definition which it has in all cases of adult specimens in summer vesture.

Dimensions: Adult.—Length (average) 18·00, extent about 27·00, wing 7·75, tail 3·50, difference between outer and inner feathers 1·25; tarsus 1·25; middle toe and claw 2·00, outer toe the same, inner toe 1·40; chord of culmen 1·30, its curve 1·50; rictus 2·25; gonys ·75; nostrils to tip ·85; greatest depth of bill (just anterior to nostrils) ·90; greatest width of the corneous portion ·30. Young.—Length 15·00; extent 22·00; wing 7·00; tail 3·00; tarsus 1·00; chord of culmen 1·00; rictus 1·75; gonys ·60; greatest depth of bill ·60; greatest width ·20.

(To be continued.)

Cats killing Squirrels.—In the numbers of the 'Zoologist' for January and March, 1869 (S. S. 1057 and 1129) this question is discussed. It may not be amiss to mention that the fact of the domestic cat killing squirrels in India is of very frequent occurrence. The Indian species, the palm squirrel (*Sciurus Palmarum*), is somewhat smaller than the English one, but probably more active and vigilant: it nevertheless frequently falls a prey to the cat, to whom nothing seems to come amiss. I was once living in a house where it was considered necessary to keep a cat; but the animal soon gave up its legitimate calling, and took to living upon squirrels, which were more numerous than the rats, easier caught, and afforded doubtless better food. On several occasions I witnessed the cat in the act of "stalking" and taking the poor squirrel. These animals are to be found in considerable numbers in every suitable locality, and in some parts of India they actually infest the house—so much so that I have seen five or six caught of a morning in a circular wire rat-trap having three entrances. The cat, on the occasions referred to, would watch the squirrel in the act of feeding under a tree (one at a distance from the others, and sufficiently removed from buildings would be selected), and by dint of hiding behind tufts of grass and bushes, and taking advantage of the inequalities of the ground, would manage to get the tree between her and the squirrel, and then with a pounce would carry off the victim, to be devoured at leisure in the garden. I have frequently baulked the cat thus in the act of "stalking," and seen her renew her endeavours almost immediately. I could relate other instances in proof of the partiality cats have for squirrel's flesh, more particularly for their young.—*Andrew Anderson; 1, Union Place, Trinity, Edinburgh.*

The Beaver in Scotland.—Allow me to make an addition to the evidence on this subject collected by Mr. Brown, in the admirable paper reprinted in the January number of the 'Zoologist' (S. S. 1965). Prof. Cosmo Innis, in his work on 'Scotland in the Middle Ages,' observes that in the capitular for the rates of custom duties to be levied at the Scotch ports, believed to have been settled by King David I. (who reigned from 1124 to 1153), "It is not without interest that, in the enumeration of furs upon which duty was to be taken in exporting, along with the common skins of tod, whitrel, mertrick and cat, we have, specially mentioned in all the manuscripts, the skins of beaver and sable." (p. 236). What the "sable" may have been I do not know, the marten having already appeared under its Scotch name of "mertrick:" possibly the fur of the polecat may have been so called.—*Edward R. Alston; Stockbriggs, Lesmahagow, N.B., January 7, 1870.*

Large Badger in Somersetshire.—A male badger (*Meles vulgaris*) was shot near Crewkerne, Somersetshire, on the 8th of December, of the unusual weight of above thirty-two pounds. It was sent to the naturalist of this town, Mr. Shopland, to be stuffed, where I had the opportunity of seeing it. I regret not to be able to give its dimensions. The above is, as far as I remember, the heaviest specimen of its kind that has come under my notice.—*A. de Hügel; Florian, Torquay, December 19, 1869.*

Whale on the Coast of South Devon.—On Thursday the 18th of November, 1869, D. Middleton and R. Pratt, whilst whiting fishing about twelve miles off the land of this coast, perceived a large object approaching, submerging and showing itself on the surface at intervals. It passed them at only twenty yards' distance, and was evidently a whale, probably a rorqual. From the nose to the back fin the distance appeared about twenty feet; allowing therefore twenty to twenty-five feet from back fin to tail, it might have been from forty to fifty feet in length. Two others were reported to have been previously seen.—*J. C. Wilcocks; Budleigh Salterton. (From the 'Field').*

Whales in the Firth of Forth and at Portsmouth.—The whales which have been lately stranded on our own shores, one at Longniddry in the Firth of Forth, another at Langstone Harbour, near Portsmouth, and others elsewhere, have given rise to a discussion which promises to become interesting. Mr. Flower holds to the Longniddry whale being either *Balænoptera Musculus* or *B. Sibbaldii*, while Professor Turner of Edinburgh, together with other eminent Scotch naturalists, incline to regard it as an undescribed species. There is, we are glad to learn, every reason to hope that the skeleton will be preserved, in which case the species will be finally set at rest.—'Nature.'

Iceland Falcon in Cornwall.—A fine young female of this variety of the jer falcon (*Falco islandicus*), in the immature state of plumage denoted by the dorsal feathers being bordered with white, with the under parts mottled with brown on a yellowish white ground, legs and feet of a pale greenish blue, was lately captured when entangled amongst sedges on some coarse ground in the parish of St. Merryn, near Padstow. It was kept alive for some time by Mr. J. Old, of Carnevas, in that parish, who sent the bird to be preserved by Mr. Vingoe. The ovary contained a bunch of eggs, the largest about the size of ordinary shot. The bird when set up was forwarded to Mr. Gould, when it also came under the observation of Prof. A. Newton, who both verified its value as the rarer variety than the *Falco Grœnlandicus* or

F. candicans. Mr. Gould retains the specimen to make a drawing of it. On comparing the relative sizes of the breast-bone of this and the common kite I was surprised to find that it was very nearly, if not quite, double the bulk.—*Edward Hearle Rodd; Penzance, January 17, 1870.*

Japanese or White's Thrush in Somersetshire.—I have to record the occurrence of the very rare *Turdus Whitei* of Yarrell at Hestercombe, near Taunton. On Friday, the 7th of January, I met Mr. Beadon, of Yatton, when out hunting: he told me his son had shot a bird he did not know, when out shooting a day or two before at Hestercombe, in mistake for a woodcock. Mr. Beadon afterwards kindly sent me the bird, or rather what remained of it (for it had been very much mauled by dogs and beaters), for identification, and with permission to keep it for my collection if I could make anything of it, which luckily, with the assistance of Mr. Bidgood, the Curator of the Museum at Taunton, I have been able to do. The bird agreed so closely with Yarrell's description that I think I need add no particulars, except that the legs and toes (scarcely faded at all when I first saw them) were yellowish brown instead of pale brown; the claws considerably paler than the legs and toes, but still tinged with yellowish brown.—*Cecil Smith; Lydeard House, Taunton.*

*Six Additions to a List of the Migratory and Wandering Birds of the County of Dublin.**—

Wood Lark. A very abundant winter visitant: it also breeds in the county. (Accidentally omitted in former list.)

Melodious Willow Wren. A specimen of this fine species has lately been exhibited in the Museum of the Royal Dublin Society, and bears the inscription, "Dunsinea, Co. Dublin. Donor, John G. Rathbarne, Esq."

Reed Wren. December, 1843. Kinahan, in the 'Zoologist' (Zool. 6957).

Tree Sparrow. Dalkey and Baldoyle. Scarcely known to any but the bird-catchers. Many of them have pointed it out in my collection: they mention it as having a puce-coloured head, a finch-like "twitter," and that it is much smaller and differently marked from the common sparrow. It is scarce, but they believe it to be resident.

European Whitewinged Crossbill. Occurred once to myself, as stated in a former number of the 'Zoologist.'

Longtailed Duck. A scarce winter wanderer. Thompson records it, and it has passed several times under my own observation. (Accidentally omitted in former list.)

This makes the number of species of birds, resident, migratory and wandering, of the County of Dublin, two hundred and twenty four. I shall feel greatly obliged to any person who will confirm any of the rare birds in this list, or add any species I may have omitted. I have hopes of being able to include the wood sandpiper amongst our wandering or perhaps migratory species; also the wood wren, which, though I can get no proof of its existence, I am convinced is a regular migrant, and that it is often passed over as the common willow wren. Numbers of rare birds occur in Ireland without any record being made of them other than in the reports of the local societies. Few readers of the 'Zoologist' will believe that both the blue thrush (*Turdus cyaneus*)

* Published in the 'Zoologist' for 1866 (S. S. 220, 300).

and White's thrush (*T. Whitei*), and the ruddy sheldrake, have occurred within the last few years in Ireland, yet if a modern work on British birds were got up, in all probability these would be shorn from the laurels of Ireland, especially when we have no Thompson now living. The blue thrush was presented to the Royal Dublin Society by Mr. Brassington: it was killed on the 17th of November, 1866 (*vide* label attached), in Westmeath. White's thrush was shown me by Mr. Glennon, of Wicklow Street, Dublin, who stuffed it. The ruddy sheldrake was sent to Mr. Williams, of Dame Street, to stuff.—*H. Blake-Knox; Dalkey, December 23, 1869.*

Black Redstart in the County of Dublin.—December 13. While driving past the Colamore to-day I had the pleasure of seeing a male black redstart, in full distinctive dress: it was in a field opposite Alma and Riva Cottages. It disported itself quite close to me while I remained, flying from every little eminence to the grass with that quick vagrant action so peculiar to these birds: there was also a sunny wall along the field; against the face of which it flew frequently, a habit so common to the species that I never saw one that did not do so. I am sorry to say that I was tempted to go for my gun: on my return the bird was still in the field, but showed great wariness and restlessness. I fired at a disadvantage, only wounding it, when it sought safety in an old wall, where I had to leave it. Frequently in company with it I saw other birds, but I think they were stonechats, but of this I am not sure, for I could not get near enough to distinguish them—at all events, they were not male birds. December 14. Saw a male black redstart in same field as yesterday: did not molest him: hope he may be the same bird: he seems all right. For the last twelve years I have met with the black redstart every second winter: this rule was never violated, except in 1867, and in that year I spent much of my time on the sea.—*Id.*

On the Plumage of the Black Redstart.—Has the black redstart a winter and a summer plumage? I say not. Dr. Bree, in his 'Birds of Europe,' is under the impression it has. I argue the fact that it has not two seasonal plumages, because birds shot by myself in December and January, not to speak of many seen in October and November, are similar to others from the Continent shot during the summer months, with the slight difference that the older the plumage the more the fringes or edges to the feathers wear off, which is common to all the Sylviadæ, finches, &c. The adult male black redstarts in winter (County Dublin specimens) agree with the plates and woodcuts in so many of our works on Natural History, and certainly never with *S. Cairii* of Dr. Bree. "This bird," writes Dr. Bree (vol. ii. p. 6), in reference to *S. Cairii*, "is exactly similar in plumage to the autumnal moult of the male *S. Tithys*, the black redstart of the British lists. It affords a good example of what is termed a permanent variety or race, because it has been found by careful examination that it never assumes the dark breeding plumage of the latter bird; I have thought it right therefore to give a figure and notice of it in this work, more particularly as the black redstart is a rare straggler in Britain, and not likely to be met with here in its moulting plumage." Dr. Bree here overlooks the fact that the black redstart is a winter migrant or wanderer, chiefly to Britain, and that if the winter plumage (I do not understand the term "moulting plumage") of the male bird is similar to that of *S. Cairii*, that would be the plumage in which British observers would more generally find it; in other words, that male would be similar to female. But as most of the male black redstarts that I have heard of or seen as British have been shot after the autumnal moult, and as all of them were in the full black redstart plumage, or the

breeding plumage of Dr. Bree, I cannot for a moment think it has seasonal plumages. The young male after the autumnal moult is like the old male, but, as in all or most young birds the intensity of the colour is subdued or hid by the extravagant depth of the fringes of the feathers, but which shines forth as the fringe gradually wears away. I have never, even in young birds, found this fringe at all sufficient to hide the distinctive colouring of the male: the bulk of observation has been made on *S. phœnicurus*. I think M. Degland clearly shows there is no spring moult, and that *S. Cairii* breeds in the plumage of *Cairii*, and that *S. Tithys* does not change from the plumage of *Cairii* to that of *Tithys* in the spring: that observer, referring to *S. Cairii*, says, "This bird breeds in its autumn plumage, which it never changes at any period of the year. Every research which has been made in the spring to find a bird in intermediate plumage has been in vain. Now if *S. Tithys* had been found in spring in intermediate plumage,—that is, changing from the supposed winter plumage of Dr. Bree, which, bear in mind, is similar to *S. Cairii*, to that of the true male black redstart plumage, which Dr. Bree thinks only pertains to the breeding season of *S. Tithys*,—how could the continental naturalists determine such a bird from the gray redstart (*S. Cairii*), making the change to the black plumage of summer? I infer from this that neither *S. Cairii* nor *S. Tithys* make any change in spring; but that, like the stonechat, furzechat and wheatear, they carry the same plumage winter and summer. Certainly if the male of *S. Cairii* breeds in *Cairii* plumage, with such different habits as naturalists describe, it must undoubtedly be a true species or a distinct race. I feel no doubt that *S. Cairii* has occurred to me in winter in this county. Many years ago I had a bird caged that I could not call the female of either of our redstarts: it appeared at once a male bird by its *pure plumage* and energetic habits: its colour was a pure zinc-gray, and not the brown or smoky gray of the female redstarts: its tail and upper tail-coverts were much brighter red than those of an old male black redstart, and the abdominal region more white. During an absence from home it died. Before I commenced stuffing, or indeed thought of forming a collection, I used the red tails of County Dublin black redstarts for making fishing-flies. One snowy winter a groom of ours shot ten or twelve for this purpose, most of them *black*, but others pale zinc-gray birds, with brighter tails than male black redstarts, and *purser* coloured bodies than female birds: they chiefly frequented dung-hills, the ground being snow-bound: there were many more seen this year that were not killed. I still possess a head of one of these old male black redstarts, and till lately many red tail-feathers, but of the supposed *S. Cairii* I have no trace, except in memory, and that their tails made the brightest flies. Since then I have added males of *S. Tithys* (shot in mid-winter) to my collection, but neither females nor birds supposed to be *S. Cairii*. In previous numbers of the 'Zoologist' (Zool. 8034, 8445, 9433) I have recorded occurrences of the black redstart in this county.—*H. Blake-Knox.*

Titmouse's Nest in a Letter-box.—In the spring of 1863, while I was absent from home with my family, and the postman, in consequence, came but seldom to the house, a blue tit took possession of my letter-box, and built its nest in it, going in and out by the slit in the door, against which the box was attached. The bird covered the whole bottom of the box with moss and hay and feathers, and when I returned home there were four eggs in the nest; but in consequence of the necessary interruptions which our return occasioned the nest was forsaken. I have the four eggs still in my possession.—*Edward J. Moor; Great Bealings Rectory, Woodbridge, Suffolk, November 3, 1869.*

The Pennsylvanian Pipit, &c., at Bridlington.—The enclosed letters refer to a bird which I shot on the 20th of November, and which, on referring to Bree's 'Birds of Europe,' Dr. Boulton, of Beverley, Sir H. Boynton and myself decided was the tawny pipit (*Anthus rufescens*). I, however, communicated the capture to Dr. Bree, and having sent the bird for his inspection, you will observe that he and Mr. Sclater pronounce it to be the Pennsylvanian pipit (*A. Ludovicianus*).

“ East Hill, Colchester, December 21, 1869.

“ My dear Sir—I must apologise for not answering your letter in reference to the pipit sooner, but the fact is the bird is a puzzle: this is, I conceive, owing to its moulting condition. After careful examination I came to the conclusion that it is the *Anthus Ludovicianus* of my 'Birds of Europe.' The tail-feathers, however, being those of *A. rufescens*, I sent the specimen up to Dr. Sclater, the Secretary of the Zoological Society, from whom I had the type specimen of *A. Ludovicianus* figured in my work. From his reply you will see that Dr. Sclater confesses himself unable to decide the matter, but thinks I am right, and sends down the specimen I figured for me to compare:—‘ Dear Sir—I return the box with the pipit. It is certainly very like a faded specimen of *A. Ludovicianus*; but I am not sufficiently acquainted with this very difficult group to give you a decided opinion. I send you the skin you figured, which is from California, that you may form your own opinion. Yours, &c., P. L. SCLATER.’ I will state to you the *pros* and *cons*. I never saw a tawny pipit in any plumage so thoroughly olive-green as your specimen, but still when the bird is taken out of the case there are the remains of real tawny colouring on the primaries, and the two outer tail-feathers are those of *Anthus rufescens*. The claw, however, of the hind toe is against us; it is longer than the toe, and this is a character of *A. Ludovicianus*: and again, your specimen is in all its measurements, length, length of wing from carpal joint, tarsus and beak, exactly those of *A. Ludovicianus*, which is altogether a smaller bird than the tawny pipit, and the beak is slightly declinated or curved at the extremity of the upper mandible—another character of *A. Ludovicianus*. The group is a very difficult one, but I think we may pronounce your specimen one of *A. Ludovicianus* in moulting plumage. The only other species likely to be confounded with it is our meadow pipit, but the hind claw decides this at a glance. I will send the bird down to Beverley to-day. Pray make use of this letter in any communication you may make to the 'Zoologist.' * * * Believe me, &c., C. R. BREE.

“ PS.—You will notice that the base of the second tail-feather on its outer web is *dark*: usually in *A. Ludovicianus* the second feather is merely spotted with white at the end.”

You will gather from Dr. Bree's *pros* and *cons* a description of the bird, with this exception, that the colour of the legs and feet is (or at least was when newly shot) a pale flesh, and this corresponds with *A. rufescens*. If you would like to see the bird I shall be glad to forward it to you for inspection. The pipit is a male bird, and was shot about three miles to the south of Bridlington, on the coast, and appeared to be feeding at the time on a sand-hill near to some long coarse grass. I have also received the following birds during the summer and autumn, *viz.*:—Sandwich tern (*Sterna Boysii*), shot on the 11th of August, at Bridlington Quay, by Mr. Walkington; a pair of dotterel (*Charadrius morinellus*), shot by Mr. G. Crowe, North Dale,

Bridlington, on the 30th of September; the great snipe (*Scolopax major*), shot at Flamborough, by Colonel Hall, on the 20th of September.—*T. Boynton*; *Utrome Grange, Lowthorpe, Hull, December 27, 1869.*

Shore Lark at St. Andrews.—An adult female of *Alauda alpestris* was shot in the Eden estuary, on the 31st of December, 1869, while in company of snow buntings. The bird is now in my collection.—*R. G. Wardlaw Ramsay*; *Whitehill, Lasswade, N.B.*

Siberian Lark at Brighton.—I have now, through the kindness of Mr. Swaysland, of Brighton, the two birds concerning which I promised, in my last communication (S. S. 1984), to give you more particulars. The one I believed might be a young snow finch is a specimen of the Siberian lark (*Alauda sibirica*), the first that has been recorded as occurring in Britain, and a very interesting addition to our list, as it is very rare even as a European species.—*Frederick Bond*; 203, *Adelaide Road, South Hampstead.*

[Mr. G. Dawson Rowley has favoured me with a note to exactly the same purport, and adds that Professor Newton acquiesces in this decision.—*Edward Newman.*]

Correction of an Error.—The bunting which I supposed to be a young male of *Emberiza rustica* turns out to be a young male of the Lapland bunting (*Plectrophanes lapponica*): the small size of the specimen deceived me, and I quite thought it was one of the small buntings that are so difficult to determine in their winter plumage. I am very much indebted to Mr. Gould for the trouble he has taken in going over his fine series of buntings with me to identify this specimen.—*Frederick Bond.*

Correction of an Error.—The citril finch mentioned in the same communication must also be struck out of my list. I regret very much that I have made such a mistake: the two birds are most certainly wild canaries. By the kindness of my friend Mr. J. J. Weir, who took the trouble of comparing skins of the wild canary with Mr. Monk's first bird, I now possess the skins he used for the comparison in my collection, and I find that the skin of the wild bird is identical with the specimen captured in November last, and the skin of the female bird, Mr. Weir tells me, is identical with Mr. Monk's first bird. I will be more careful next time, and will not trust to memory.—*Id.*

Bramblings near Woodbridge.—During December a large flock of the brambling have frequented certain beech plantations in the neighbourhood of Woodbridge, in company with chaffinches, with which, when feeding on the ground, constant warfare is kept up.—*Edward Charles Moor.*

Kingfisher's Nest in a Crag-pit.—On the 24th of last July I was requested by the head gardener of a gentleman in the next parish to come and see a kingfisher's nest in his garden. I accordingly went the same afternoon with my son. We were taken to the spot, which is a small crag-pit, forming a part of the garden premises—a place, close to which, and passing to and fro, are persons daily employed. In the crag-pit, and about seven feet from the ground, we saw the nest, with six young ones. They were about three-quarters grown, and were all pretty near to the edge of the hole: one young bird was very clamorous for food, and the rest were somewhat restless, but made no noise. We should have stayed to see the old birds feed them, but were told they seldom came in sight, and were very shy and crafty. The crag-pit is about three hundred yards in a straight line from a small river. The kingfisher had been seen at the hole in the spring, and I was told by an elderly labourer in the garden that he

had known kingfishers build in that pit, off and on, for the last thirty years. I saw six or seven holes, like those made by sand martins, but I believe them all to be made by kingfishers, as the crag-pit is quite a small one, with bushes about it, and opening to the north, whereas the sand martin rejoices rather in a more, dry large and sunny locality: moreover, there were no sand martins about the pit, albeit they are not scarce birds in its neighbourhood.—*E. J. Moor.*

Reported Occurrence of the Ptarmigan in Yorkshire.—In the 'Zoologist' for December (S. S. 1951) I observed a paragraph headed, "White Partridges (? Ptarmigan) near Ganton, Yorkshire," in which Captain Bell quotes the statement of Mr. Grainger (in the 'Hull and Eastern Counties Herald') that "two brace of white partridges had been shot near Ganton," and concludes by expressing his opinion that the birds in question were "*probably* ptarmigan." Considering this extremely *improbable*, and there being no editorial comment appended to Captain Bell's remark, I thought it well to have all doubts upon the matter set at rest, as soon as possible, and accordingly wrote direct to Mr. Grainger, at Hull, to make some inquiries. I requested him particularly to examine the legs of the birds in question, and to inform me whether the *tarsi* and toes were *bare* as in the partridge, or feathered as in the grouse. The answer which he was good enough to send me is as follows:—"I am sorry to have been so long in answering your favor of the 1st of December, but I have been waiting until now (December 8th) to see the man who preserved the birds, in order that I might be better able to answer your questions. You are right in supposing these birds are *not* ptarmigan. I believe they are in every sense of the word partridges. They are of course not a snowy white: I should term them really cream-coloured. The birds have the *tarsi* and the toes completely bare, and not feathered. Moreover, they have a very light chestnut shoe on the breast, and this I imagine is possessed by partridges alone. I believe there were several more birds of this description in the cover at the time these were shot. I trust this information will prove satisfactory to you, and am," &c., &c. After the perusal of this letter there can be no longer any doubt on the subject, and I may take the opportunity of remarking that there is no evidence on record to show that the ptarmigan (*Gaelic*, *tarmachan*) has ever been found so far south as Yorkshire. The distribution of this species in the British Islands has been carefully investigated by Mr. A. G. More, and his observations on the subject which appeared in the 'Ibis' for 1865 (p. 427) are well worth quoting here. He says:—"At present the ptarmigan is confined to Scotland, though there are records of its having formerly inhabited Westmoreland and Cumberland. (See Pen-nant and other earlier writers). Heysham describes the ptarmigan as having become, in his time, very scarce in Cumberland, and he cites the lofty mountains about Keswick as the only locality known to him. There is a tradition of its former existence in Wales, but I have not been able to discover the original authority for this statement, which is repeated by both Macgillivray and Thompson, and in Graves' 'British Ornithology.' My valued correspondent, Dr. J. A. Smith, of Edinburgh, has copied for me, from a newspaper, a paragraph stating that the ptarmigan inhabits the county of Peebles; but this is the only authority for its occurrence so far south on the mainland at present. The bird inhabits Islay and Jura (*Thompson*), Mull (*Mr. H. D. Graham*), Dumbarton (*Mr. R. Gray*), Argyle, Perth, and all the counties northward. Mr. John Macgillivray found the ptarmigan sparingly in South Uist, and it has only recently been exterminated in Hoy."—*J. E. Hartling.*

Bustards in Suffolk.—When I was a boy (now some fifty-five years ago) a man brought to my father, at Great Bealings, a female bustard, which he had shot in the parish of Marltesham: he asked ten shillings for it, but he was advised by my father to take it to Mr. Seaman, of Ipswich (a celebrated bird-stuffer in those days): he easily obtained his price from Mr. Seaman, who stuffed the bird and made a good profit by it in London. I asked the man who shot it for a feather of the bustard, which he gave me, and which I had in my possession for several years. This was the first and last time I ever saw a bustard that had been taken in Suffolk. About the year 1824 I was staying at Oxburgh, in Norfolk, and went with a friend to the house of the Rev. R. Hammond, in Swaffham. Among other interesting cases of British birds, stuffed by himself, was one containing one male bustard, two female bustards, one very small bustard (about six weeks old) and one bustard's egg. Mr. Hammond's account of that case to me was as follows:—A man brought to him one of the female bustards, which he had shot, and which Mr. Hammond bought and stuffed, &c. Soon after this Mr. Hammond heard that a bustard had been more than once seen flying over a large field near Swaffham: he with his servant went, towards sunset, to lay wait for it: they saw it, but it did not come within shot of either of them. They went to the same field next day and took up their positions, though not exactly on the same spot: the bird came again, and flew within a long shot of Mr. Hammond: he fired, and the bird dropped about a foot: it was evidently hit, and made a somewhat sudden turn and flew over one end of the town: he and the servant took accurate bearings (by two chimneys) of the bird's flight, which was in a straight line. It was then getting dark, and next morning, as soon as it was light, they started to look for the bird: they walked a few yards apart; they went across one field, then over the hedge into the next, holding a straight course. In the middle of the second field, which was a large one, they saw some object on the surface, which they hoped might be the bird: so it proved to be, and when within shot it was agreed that Mr. Hammond should try to throw himself on the bird, and so to secure it (for they were sure it was wounded and weak): should Mr. Hammond fail, the servant was to shoot; but when quite close Mr. Hammond saw that the bird was dead. It proved to be a magnificent male. Not long afterwards he was shooting in a field of turnips near Swaffham: his dog made a point, and on Mr. Hammond going up to him and trying to urge him on he refused to move, and on narrowly looking near the dog's head, he perceived almost between its feet a dead female bustard, in excellent preservation. After this a man brought him two bustard's eggs, which he had found near Swaffham: Mr. Hammond blew one of them and put the other under a turkey, which hatched it in due time, and it got on very well with the rest of her brood; when one day Mr. Hammond thought that a little bustard would look charmingly in the case with the other three and the eggs, and besides he tried to persuade himself that the little pet might be stolen from him by rats, &c.: so with rather a heavy heart he signed its death-warrant, and there it was in the case when I was at Mr. Hammond's, looking like a little prince in the midst of its royal companions. I fear the bustard will soon be no more than an historical bird in England. I forget what Mr. Hammond said he would *not* take for that case of bustards; but it was a long price.—*Edward J. Moor.*

Avocet, Bittern and Gray Phalarope at Hastings.—I was shown to-day an avocet, in immature dress, one of a small flock of three shot at Rye during the snowy weather in the latter part of December. A bittern was hanging up with a young heron at one

of the game-shops here last week: the dealer told me it was the second he had received lately, amongst other wild-fowl, from Lincolnshire. A gray phalarope was shot on the beach last Thursday. The weather to-day is very wintry-looking, and a heavy sea on in the channel.—*Alwin S. Bell; Hastings, January 18, 1870.*

The American Stint at Northam Burrows.—Mr. Rodd has asked me to communicate some particulars with reference to the American stint referred to by him in the 'Zoologist' for December (S. S. 1920) which was shot by me on the 22nd of September last, and I have much pleasure in complying with his request. I observed the bird on several successive mornings before I obtained it on a salt-marsh lying between Northam Burrows and the estuary of the rivers Taw and Torridge, and on every occasion it was alone. It seemed very active and restless, and was rather difficult of approach. When it rose it always repeated a short hurried note, similar to that of the two other species, though perhaps rather shriller and more frequently reiterated (differing in this particular from Mr. Vingoe's specimen, which was silent when it rose). Its flight was strong and rapid for so small a bird, and struck me as being something like that of the common sandpiper, which bird indeed (except with regard to the vibratory motion of the body peculiar to that species) it somewhat resembled in its movements when on the ground. It always flew away across the water out of sight and at a great height, but it invariably returned to the same spot where I had first observed it. I had no difficulty in identifying the bird as distinct from either of the two British species of stint, and a careful comparison of it with the description of Mr. Vingoe's specimen of the American stint in Newman's edition of Montagu's Dictionary, led me to think that it would prove to be a second British specimen of that species—a supposition the accuracy of which was kindly tested and established by Mr. Rodd and Mr. Vingoe, to whom I sent it for inspection. The specimen is now in my possession. It is a male bird, and as far as I can judge, in full plumage, which is of a very much darker shade throughout than that of *Tringa minuta*. The measurements and description generally correspond pretty nearly with those of Mr. Vingoe's specimen, as given in Newman's Dictionary, though the difference between the species in question and the two British species appear perhaps to be a little more pronounced in my specimen than in his. One point alone of actual dissimilarity may be noticed, and this may be very likely owing to a diversity of age or sex. In his specimen the legs were grayish yellow; in mine they are greenish gray, strongly inclining to the former tint. I think the occurrence of the bird may most probably be attributed to the prevalence of south-westerly gales, of which we had had a succession for many days previously.—*Marcus S. C. Rickards; Clifton, December 10, 1869.*

Gray Phalarope, Little Stint and Snow Bunting at Northam Burrows.—I obtained a specimen of the gray phalarope at Northam Burrows on the 24th of September last. When I noticed it, it was swimming in a small inland pond in the near neighbourhood of some ducks. It is in a transition state of plumage, and though a male specimen is of an unusually large size, measuring fully ten inches in length. I saw another specimen in the birdstuffer's shop at Barnstaple, which had been shot on the banks of the Taw about the same time. It was, however, a much smaller bird, and more advanced towards winter plumage. I also shot a specimen of the little stint at Northam Burrows on the 29th of September last, and a snow bunting on the 2nd of October.—*Id.*

Pintail Duck on the Severn.—On the 25th of October last I shot a specimen of the pintail duck at the mouth of the Severn, near the New Passage. It was alone at the

time. It is a male bird, and though of full size has not yet attained to the plumage of maturity.—*Marcus S. C. Rickards.*

Common and Sandwich Terns at Spurn.—I see in the December number of the 'Zoologist' (S. S. 1944) Mr. Cordeaux says the common and Sandwich terns breed at Spurn. I am sorry he has been misled respecting these two species, as neither of them do breed, or ever have bred, there to my knowledge. The colony consists exclusively of the lesser tern, and, to use Mr. Cordeaux's remark, their breeding is all a farce, as the boys, and most of the men, too, make a practice of taking every egg they can find, most of which they destroy.—*F. Boyes; Beverley, Yorkshire, December 22, 1869.*

Little Gull at Coldingham.—When at Messrs. Small and Sou's, birdstuffers, in Edinburgh, the other day, I saw, in the flesh, an immature female of the little gull, shot at Coldingham, on the 27th of December last.—*R. G. Wardlaw Ramsay.*

Rare Birds in the Neighbourhood of Plymouth.—During the month of December, 1869, the following rare birds have occurred in the neighbourhood of Plymouth:—

Little Auk. A few days since I examined a specimen of the little auk (*Alca alle*), which had been knocked down, on the 19th of December, by a boy with a stone, on the river Plym, by Cann Wood—a rather strange place for such a bird, on a trout stream running through a wood, full six or seven miles from the nearest part of the coast; but no doubt it had been driven so far inland by the severe gales which happened about the time. The boy, I understand, was with some others hunting squirrels when he caught sight of the bird on the stream.

Black Redstart. Some black redstarts (*Phœnicura tithys*) have appeared on the coast, four of which I have obtained and sent to as many ornithological London friends. I have an idea that the same black redstart must sometimes revisit a favourite locality for a succession of years, as last winter I observed a splendid old male on a certain part of the coast, which I hunted for several days, but notwithstanding my vigilance he always managed to escape by hiding in and under particular rocks and caves. Now, strange to say, I have this year at the same place several times seen and chased a bird exactly similar in plumage and action, which has again managed as yet to dodge me and escape in a similar way, which makes me feel certain it must be my old friend of last year. A rather curious and interesting incident happened the other day when looking for redstarts on a very wild part of the coast. On taking my lunch with a friend among the rocks a robin came down, and, perching on a rock near, seemed to be intently watching our actions; on observing which I said to my friend, "Surely that robin wants to be invited to lunch," and throwing a crumb towards it, I exclaimed, "Come along, then, old fellow," when to our great surprise, down it instantly flew close to our feet, made a hearty meal, and examined our papers the instant we left. I should have thought very little of this incident had it happened in a village or near a house, but on such a wild part of the coast I certainly did think it rather strange, and after such innocent confidence shown by the little bird I could not have shot at even a redstart that day had I seen a hundred. I do remember once pitching a crumb to a blackheaded bunting during a severe snow-storm, which it picked up, but the affair with the robin occurred during mild weather. It is quite surprising to observe the quantity of robins that frequent the wildest parts of our rocky coasts during winter, flitting in and out among the rocks and caves (undercliff) all day long.

Iceland Gull. On the 6th I saw an Iceland gull in the Plymouth Sound.—*J. Gatcombe; Stonehouse, Plymouth, December 31, 1869.*

Dates of the Breeding of Birds on Tyneside for 1869.—Eggs of the following birds were obtained on the dates subjoined:—March 22nd, longeared owl; 26th, tawny owl, cushat and rook; 28th, common thrush; 30th, peewit; April 3rd, missel thrush and dipper; 11th, woodcock; 15th, snipe and pheasant; 17th, blackbird and common wren; 18th, curlew and jackdaw; 20th, chaffinch; 25th, robin, longtailed tit and goldencrested wren; May 1st, golden plover, pied wagtail and ring ouzel; 9th, partridge, creeper, kestrel and sparrowhawk; 10th, marsh tit and grasshopper warbler; 16th, French linnet, blackheaded gull, gray wagtail and twite; 22nd, common sandpiper; 25th, wood wren and cole tit; June 10th, corn crake and night hawk.—*Thomas Thompson; Winlaton.*

Starling feeding on the Grubs of Phyllopertha.—Two or three acres of my lawn are riddled throughout by the bills of the starlings seeking the grubs of the small brown chaffer which so spoils our roses, especially the yellow ones. I notice that they gape when they put their bills into the earth, as if to open a hole that they may see in between the mandibles. I have always had starlings here, but they seem only of late years to have discovered this rich mine. Some years ago the place was overrun by these beetles, and I have seen them issuing new-born from the ground by tens of thousands: they are now scarce, and the grass of the lawn is much improved. It is just when the rooks are thus destroying the grub of the cockchaffer that they are shot down as their enemies by the farmers. Two months ago I had a bee-eater here feeding upon the yew-berries. No locusts.—*W. C. Hewitson; Oatlands, January 26, 1870.*

Eggs of the Cuckoo.—I do not hear of any vari-coloured eggs of the cuckoo. I have seen several of the eggs here since the controversy, but they were all gray, like those of the pied wagtail.—*Id.*

Pilchards in Mount's Bay on Christmas Day.—Several large shoals of pilchards (*Clupea pilchardus*) were captured off Mullion, in Mount's Bay, on the 25th of December. The occurrence of shoals of pilchards off the Cornish coast in December, and even later in the winter, is not unusual, but they generally appear east of the Lizard. Two years ago a shoal was taken in Truro river (a salt-water estuary) in February. Last year there was a large catch of pilchards at St. Ives in the second week in December. In 1834 there was a catch off St. Michael's Mount in the week before Christmas; but the present catch is, I believe, the latest in any season recorded in Mount's Bay. It yet remains to be seen whether this fish is getting later throughout its whole season of migration year after year (it certainly is in its arrival), or whether a Christmas fishing season is simply the result of a longer watching than usual on the part of the fisherman. The fish were very fine, and in excellent condition. There were several small mackerel with the shoals, but this is not unusual.—*Thomas Cornish; Penzance, December 23, 1869.*

Note on the Odour of Cynipidæ and other Hymenoptera.—On the 15th of November I mentioned at the meeting of the Entomological Society that I had

met with a peculiar odour in *Cynips lignicola*, as well as in an undetermined species of *Cynips* bred from a pea-gall on the under side of oak-leaves. When the meeting was over Mr. Boyd kindly handed me some galls of *Biorhiza aptera*, *Fab.*, from which I have since bred a number of females, all of which on being handled alive emitted a powerful scent, like that of a very ripe pear. I have also detected a similar but fainter odour in *Cynips folii*, *Linn.* If we turn to other groups of Hymenoptera, the pungent quality of many of the Formicidæ will of course occur to every reader; and as regards Crabronidæ, Mr. T. J. Bold has long ago recorded, in the 'Zoologist,' of *Crabro cetratus* of Shuckard, that when he pinned the latter they "emitted a powerful perfume, somewhat resembling that of roses." Professed hymenopterists will no doubt be able to add numerous instances in other groups, particularly in the Apidæ.—*Albert Müller; South Norwood, S.E., December 7, 1869.*

PROCEEDINGS OF SOCIETIES.

ENTOMOLOGICAL SOCIETY.

December 6, 1869.—H. W. BATES, Esq., President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—'Eugenie's Resa' (Hymenoptera by A. E. Holmgren, Diptera by C. G. Thomson); and 'Hemiptera Africana,' by C. Stal, vols. i.—iv.; presented by the Royal Swedish Academy of Sciences. 'Entomologische Zeitung,' 1869, Parts 7—12, and 1870, Parts 1—3; by the Entomological Society of Stettin. 'The Zoologist' for December; by the Editor. 'The Entomologist's Monthly Magazine' for December; by the Editors.

Election of Members.

The following gentlemen were severally balloted for, and elected Members:—M. M. Gustave d'Emerich, of Pesth; l'Abbé de Marseul, of Paris; Charles Oberthur, fils, of Rennes (Foreign Members); and Captain Lang, R. E., of Reigate; and Messrs. W. Arnold Lewis, of The Temple; J. Cosmo Melvill, of Manchester; and Howard Vaughan, of Kentish Town.

Exhibitions, &c.

Prof. Westwood exhibited drawings and dissections of some Hymenoptera possessing extraordinary structural peculiarities: they were principally Chalcididæ, of the genera *Prionopelma* and *Metapelma* (see Proc. Zool. Soc. 1835).

Mr. F. Smith exhibited a mass of earth-cells formed by a species of *Halictus*, found by Mr. J. K. Lord near Cairo. The bee burrowed into the ground to a depth of about twelve inches, and the cells were then formed, close together, and all round the shaft or tunnel, the entrance to each cell being from the central shaft. Mr. Lord described the bee as making a tubular entrance to the nest, probably of the material which was thrown out in the excavation of the vertical shaft, but the construction was too brittle or fragile for transport. Mr. Smith remarked that this tubular entrance was

after the manner of *Odynerus spinipes*, but it was the first time he had heard of any species of bee forming such a construction.

The President said that some species of *Melipona*, which form their nests in the hollows of trees, construct a trumpet-shaped entrance of waxy material, or of some substance held together by a waxy cement.

Mr. F. Smith exhibited a larva-case, which he supposed to belong to a species of *Cæceticus*, found by Mr. J. K. Lord in the plains near Mount Sinai: numbers of the larvæ were seen crawling on the sand, no tree or bush being near, and the only plant growing in the neighbourhood being a species of wild sage. The larva-case appeared to be formed principally of pieces of grass, arranged longitudinally.

Mr. J. Jenner Weir exhibited two specimens of *Heliothis armiger*, bred from larvæ which fed in tomatoes. An importation of tomatoes from Spain or Portugal had been greatly damaged by a number of green larvæ, with black lines and spots, which fed in the fruit, where there was apparently juice enough to drown them, and which ultimately produced the moths exhibited.

Prof. Westwood exhibited drawings and dissections of several remarkable new forms of *Pselaphidæ*.

Mr. Albert Müller exhibited a photograph of a Coleopterous monstrosity, a specimen of *Pterostichus Prevostii* with eight legs: on either side of the left hind leg (*i. e.* before and behind the normal hind leg) was a supernumerary limb of somewhat stunted growth, but structurally perfect: there were apparently three distinct coxæ fitting into three separate sockets in a single expanded trochanter. The beetle was found in Switzerland, and Mr. Müller had seen it alive: the extra legs were simply carried, and not used to assist in locomotion.

With reference to the locust exhibited at the previous Meeting (S. S. 1990), the President had received the following from Mr. Edwin Brown:—

“I am informed that when my specimen of a new locust was exhibited at the last Meeting of the Society, it was suggested that the occurrence might have been brought about by the introduction of the insect into the brewery in an empty returned cask. I think such a suggestion is untenable, inasmuch as two specimens of the same species were captured in different parts of the town of Burton-on-Trent, and one caught in Birmingham certainly belongs to the same species. There were several other instances recorded in the papers about the same time of locusts having been captured in Worcestershire, in Nottinghamshire, and at Waterford. It has not yet been proved that these examples were all of the new species, but it is highly probable that this was so, as the peculiar positions in which the locusts have been captured this year all indicate, if I may so term it, an unsophisticated disposition of the animal, widely different from that of *Locusta migratoria*, which has nearly always been found in fields or gardens, whilst the species of this year has been captured in two brewery yards, in the room of a house, upon a man's coat, and (it is said) upon a lady's bonnet, but looking at the difficulty an animal so large would find in getting standing room upon a modern bonnet, there may possibly be some mistake as to the last-mentioned locality. Mr. F. Walker has identified the species as *Acridium peregrinum* of Olivier, which is dispersed over a large part of Asia and Northern Africa, but has not hitherto been found in Europe.”

(See also, on the recent occurrence of locusts in this country, Newman's *Entom.* iv. 367.)

Paper read.

The following paper was read:—"Note on *Boreus hyemalis* and *B. Westwoodii*," by Mr. M'Lachlan.

January 3, 1870.—H. W. BATES, Esq., President, in the chair.

Additions to the Library.

The following donations were announced, and thanks voted to the donors:—'Proceedings of the Royal Society,' No. 115; presented by the Society. 'Proceedings of the Linnean Society,' 1869; by the Society. 'Bulletin de la Soc. Imp. des Naturalistes de Moscou,' 1868, No. 4; by the Society. 'Mittheilungen der Schweizerischen Entomologischen Gesellschaft,' vol. iii. No. 3; by the Society. 'The *Tineina* of Southern Europe,' and 'The Entomologist's Annual for 1870;' by H. T. Stainton, Esq. 'Equatorial Lepidoptera collected by Mr. Buckley,' Parts 1—3; by W. C. Hewitson, Esq. 'Lepidoptera Exotica,' Part 3; by E. W. Janson, Esq. 'Observations on the Parasitism of *Rhipiphorus paradoxus*;' by Frederick Smith, Esq. 'Réflexions et Expériences sur le vol des Coléoptères;' by M. Felix Plateau. 'Petites Nouvelles Entomologiques,' Nos. 1—12; by the Editor. 'The Zoologist,' for January; by the Editor. 'The Entomologist's Monthly Magazine,' for January; by the Editors.

The following additions by purchase were also announced:—Palisot de Beauvois, 'Insectes recueillis en Afrique et en Amérique;' Ehrenberg & Klug, 'Symbolæ Physicæ;' Brullé et Blanchard, 'Voyage de d'Orbigny;' Motschulsky, 'Études Entomologiques;' and Lowne, 'The Anatomy and Physiology of the Blow-fly.'

Exhibitions, &c.

Mr. Hewitson sent for exhibition a collection of butterflies, including 135 new and many rare species, all in beautiful condition, collected by Mr. Buckley in Equatorial America. With two exceptions, *Heliconia Cythera* and *Terias Ecuadora*, which were taken on the west side of the Andes, the new species were all captured between St. Ines and St. Rosa on the River Napo, within two degrees of longitude, and descriptions thereof were in course of publication under the title of 'Equatorial Lepidoptera collected by Mr. Buckley.'

Mr. Buckley (who was present as a Visitor) gave some interesting details of his stay in Ecuador. In reply to enquiries, he stated that the localities for each species were carefully noted at the end of each day's collecting; that generally speaking there seemed to be a species of *Heliconia* peculiar to each valley; that a few species occurred on both sides of the Andes, and in particular a *Heliconia* and a *Morpho* were mentioned; and that there was great difference in the altitudes at which the exhibited insects were collected, some of them, and in particular a *Pronophila*, having been taken above the snow-level.

Prof. Westwood, as an instance of partial gynandromorphism, in which the union of the opposite sexual characters was confined to a single limb, exhibited drawings of a specimen of *Anthocharis Cardamines*, the wings of which, for the most part male, partook to some extent of the colour and character of the female, as if pieces of the

wing of the male had been cut out and replaced by pieces of the wing of the female.

Mr. Bond mentioned that a considerable number of the locust, *Acridium peregrinum*, had been taken in Cornwall in October: some were captured at Falmouth, and about thirty in or near Plymouth, of which two were exhibited: most of them were found in the streets and yards of the town.

Prof. Westwood, on behalf of the Rev. Leonard Jenyns, exhibited a species of *Aphodius* (probably *A. lividus*), which was said to be frequently vomited by South-African Hottentots, who are notorious as unclean feeders; and a species of *Elateridæ* which was found in April, 1869, floating in a cup of tea at Bath, and was recognized by Mr. Janson as an eastern species of the genus *Heteroderes*.

Prof. Westwood also exhibited drawings of some new Australian *Lucanidæ*, of the genus *Lissoles*.

Mr. Pascoe exhibited a number of *Curculionidæ*, of the genus *Catasarcus*, in illustration of the paper mentioned below.

Mr. Albert Müller exhibited photographs of aberrations of *Abax parallelus* and *Clerus formicarius*; the former remarkable for its zigzag striation, the latter for the union of the two white bands of the elytra.

Mr. Quaritch (who was present as a Visitor) made a communication respecting the book-worm.

Papers read.

The following papers were read:—

“On some new British Species of *Ephemeridæ*,” by the Rev. A. E. Eaton.

“Descriptions of six new species of *Callidryas*,” by Mr. A. G. Butler.

“A Revision of the Genus *Catasarcus*,” by Mr. F. P. Pascoe.

“The Genera of *Coleoptera* studied chronologically (1735—1801);” by Mr. G. R. Crotch.

New Part of ‘Transactions.’

Part 5 of the ‘Transactions for 1869,’ published in December, was on the table.

Annual Meeting, January 24, 1870.—FREDERICK SMITH, Esq., Vice-President, in the chair.

An Abstract of the Treasurer’s Accounts for 1869 was read by Mr. J. Jenner Weir, one of the Auditors, and showed a balance in favour of the Society of £125 6s. 3d.

The Secretary read the Report of the Council for 1869, from which the following is extracted:—

“During the year twenty-one Members or Subscribers have been elected, but seventeen names have been removed from the list; the numerical gain is therefore reduced to four.

“The volume of ‘Transactions for 1869’ includes twenty-seven memoirs by seventeen authors, extends to four hundred pages exclusive of the ‘Proceedings,’ and is illustrated by six plates, of which two are coloured. To Messrs. E. Saunders, Higgins, Butler, F. Smith and M’Lachlan, the Society is indebted for the drawings

in illustration of their respective memoirs. Every paper read, down to and inclusive of the December Meeting, was actually published before the end of the year. Especial attention is called to Dr. Sharp's Revision of the British Homalotæ, as affording tangible proof of the desire of the Council that native Entomology shall receive its due share of attention. There is yet a dearth in the 'Transactions' of papers relating to British or European insects. Many of the most active students of the productions of our own islands do not favour the Society with the results of their labours, and thus exotic Entomology obtains the lion's share of our pages; and this leads to a supposition that our entomologists do not sufficiently identify themselves with their continental brethren. We are either exclusively British, or our range includes the whole world; and thus, between the insularity of some and the universality of others, European insects (in the broad sense) occupy but an insignificant portion of our publications. From this cause, perhaps, results the small number of our Foreign Members; and, as a consequence of that smallness, some who do give European insects a prominent place in their studies prefer to publish through the medium of Continental Societies, believing that they thereby obtain a wider circle of appreciative readers than if their lucubrations appeared in our 'Transactions.'

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"It has been decided to renew the offer, suspended for the last two years, of Prizes for Essays on Economical or Structural Entomology. Further particulars will be announced, probably at the next Meeting.

"In spite, then, of the comparative depression which has generally prevailed throughout the year 1869, the prosperity of the Society has been maintained. Our numbers have increased, we have added largely to our Library, the interest of our Meetings has been well sustained, our publications have been issued with regularity and dispatch, and our balance is larger than at the last Anniversary. Each of these is a fair criterion of success; the combination of them all warrants the Council in believing that for the future the future will provide."

Mr. Pascoe proposed, and Mr. Wallace seconded, a special vote of thanks to Mr. W. Wilson Saunders for the munificent gift mentioned in the Report; and this was carried by acclamation.

The following gentlemen were elected Members of the Council for 1870:—Messrs. H. W. Bates, Dallas, Dunning, Fry, Grut, M'Lachlan, Parry, Pascoe, Salvin, Edward Saunders, S. Stevens, A. R. Wallace and Wormald.

The following officers for 1870 were afterwards elected:—President, Mr. Alfred R. Wallace; Treasurer, Mr. S. Stevens; Secretaries, Messrs. Dunning and M'Lachlan; Librarian, Mr. E. W. Janson.

The President's Address (in the unavoidable absence of Mr. Bates) was read by the Secretary.

A vote of thanks to the President for his services during the past year, with a request that the Address might be printed in the 'Proceedings,' was proposed by Mr. Fry, seconded by Mr. Grut, and carried unanimously.

Thanks were also voted to the other Officers and Members of the Council for 1869, and to the Chairman; and were suitably acknowledged.

Notes on the Zoology of Newfoundland.

By HENRY REEKS, Esq., F.L.S., &c.

(Continued from S. S. 1759.)

MAMMALIA. No. 1.

SORICINÆ.

Although twenty species of three genera of this family have been enumerated as North American by Professor Baird, it is noteworthy that after a diligent search I was unable to find a representative of this or the following order, Talpidæ, which contains seven species, now referred to three genera, *viz.*, Scalops, Condylura (star-nosed mole), and Urotrichus Gibbsii, the latter being the only species of the order not confined to North America.

CARNIVORA.—FELIDÆ.

Canada Lynx, *Lynx canadensis*, Raf.—Not indigenous, and apparently a very rare accidental visitor. I only heard of the capture of two specimens, which were taken a few years since at a settlement called Daniel's Harbour, and considered a great curiosity. They had evidently crossed from the Labrador on the drift ice. Provincial name "Mountain Cat." This name, as here applied, certainly does not allude to *Lynx rufus*.

CANIDÆ.

American Wolf, *Canis occidentalis*, Richardson; var. β . griseo-albus; γ . ater).—Although this is certainly the only species of wolf found in Newfoundland it would be difficult to find two skins, even in the same litter of whelps, marked *exactly* alike; so great is the variation in the shades or degrees of colouring—from pure black to almost clear white. The wolf is yet tolerably common in Newfoundland, and few winters pass without some being trapped along the shores. They often prowl near the houses of the settlers, or pass them in the chase. I remember upon one occasion during the month of January, 1867, I shouldered my rifle and took up the trail of two old wolves which had passed the house during the previous night in pursuit of a mighty stag (*Rangifer caribou*), which I hoped to have found killed within a reasonable distance from home, but after following the "footing" for six or seven miles on ice I gave up all hopes of seeing

either the deer or wolves, and it was well I did, for I afterwards heard that the chase continued through the marshes several miles to the eastward. In the winter, when the deer feed in the marshes, which are generally surrounded by belts of Coniferæ (*Abies* and *Larix*) the wolves secrete themselves in the deer-paths and lie in wait until one or more wolves get round to windward of the deer and drive them through the paths, when some of them fall an easy prey to the secreted wolves. During my residence in Newfoundland only one instance came to my knowledge of a human being attacked by wolves, and this was an Indian by name John Joe, who related the circumstance to me in broken English, which amounted to the following:—"One Sunday morning, in the month of April, 1866, I was standing by the side of a small lake—one of the many formed by the river Exploits—when I saw an old wolf coming across the ice towards me, and I felt sorry that I had left my gun in the 'tilt' about half a mile from me, as I might perhaps have got a shot at him. Presently I saw five or six more on the ice, and all making towards me: upon this I turned and 'pulled foot' back for the tilt as fast as I could, but the wolves gained on me, and would have killed me had I not climbed a tree out of their reach. After remaining under the tree nearly an hour the wolves left, and 'sartin' I was glad, sir, to see their backs." Wolves are not so courageous usually, as the foregoing story would seem to imply, and are generally well aware of the presence of fire-arms. During the winter of 1866-67 a youth about sixteen years of age, whom I knew very well, saw six wolves pull down a fine young stag, on the middle of a large lake called Trout River Pond, and, gun in hand, approached as cautiously as possible; but the wolves, although apparently very intent on their prey, were too wary to allow of a sufficiently near approach to obtain a shot at them: the boy, however, had sense enough to cut off as much venison as he could conveniently carry, and return home. The next morning he and some of his elder brothers revisited the spot, but found only a few mutilated bones of the deer; and the wolves, which had not left the locality, quietly slunk away without the chance of a shot. The flesh of the caribou, which is usually of excellent quality when the animal is shot without chasing, is scarcely palatable when killed by wolves, or even when chased in canoes for some distance and shot, having a frothy and flabby appearance which is both disagreeable to the touch and taste.

Newfoundland Dog, *Canis*, fam. Newfoundlandæ.—These zoological notes would be still more incomplete without some notice,

however short, of this noble and faithful animal—not that I incline to the belief that the breed is indigenous to the island, or that its introduction, comparatively speaking, was at a very early date, for I could not learn on the island from the settlers, or elsewhere, that the now extinct aborigines possessed this or any other breed of dogs. After the many large, high-couraged dogs of this breed which one so often sees in England, to say that I was disappointed with those I saw daily around me in Newfoundland would convey but a sorry idea of my feelings on the subject. The well-known and intelligent-looking head may be traced in one and all, and perhaps the form of the tail has not materially altered, but in size and colour every variety peculiar to dogs in general seemed equally prevalent on the island, if I except pure white and black and white; of these two varieties I saw only one of each. The most “fashionable” colour seemed to be a light, or reddish, fawn, which I was told was the most approved colour for gunning purposes, being best for “tolling” geese and ducks, and the least easily seen by deer and foxes in the open brown marshes. Although I perfectly agree with most modern judges as to the most handsome variety—*viz.*, all black with the exception of a small white star on the breast or chest—I am by no means convinced that this is the original animal in all its purity, in fact; the settlers seem pretty well all agreed in saying the old breed consisted of a dog about twenty-five or twenty-six inches high, with black *ticked* body, gray muzzle, and gray or white-stockinged legs, with “dew-claws” behind. However this may be, I can fully testify that the only dog of this description I met with was one of the very best I ever saw, and yet his owner told me that he had never broken him; and certainly there was one peculiarity about him, for, whereas every other dog at the settlement—and their name was legion—would follow me any distance, this one would only do so from house to house, notwithstanding all my inducements by acts of kindness and the scoldings and threatenings of the owner. Such a companion would have proved invaluable. To see him dive and raise a seal weighing some four hundred-weight, and then drag him to the shore, was a sight often witnessed with pleasure, and yet the same dog would retrieve geese and ducks’ eggs and very small species of *Tringæ*, without breaking or “counting.” But it grieved me much to see that the spirits of these noble dogs seem there to be entirely broken. Often have I after nightfall, and after the inmates have retired for the night, entered some of the houses, and in the dark trod on or stumbled over a dog, which had hitherto been a

stranger to me; but instead of an angry growl or bark, the poor brute would perhaps cry out and shift to another part of the room. A growl or bark, even at a stranger, is usually punished with a most unmerciful beating. This remark applies only to those dogs generally used in gunning: those used for sleighing, when in harness, are frequently most savage brutes, and sometimes attack both man and beast if not prevented by a plentiful application from the long deer-thong of the driver.

Common American Fox, *Vulpes fulvus*, *Desm.*; *Cross Fox*, *var. β. decussatus* ("Geoffr.") *Desm.*; *Silver Fox*, *var. γ. argentatus* (*Shaw*); *Black Fox*, *var. δ. ater*.—All the varieties of the common red fox of America are proportionally common in Newfoundland. Since the introduction of "seal-skins" to the fashionable world the prices for the once absurdly valuable silver and black fox skins have been much reduced. At the present day the traders give the following prices, in Halifax, N.S. currency, for *best* skins:—a "yellow" (red) 15s. or 12s. sterling; for a "patch" (cross) 50s. or 40s. sterling; for a "silver" £10 or £8 sterling; for a "black" £15 to £20, or £12 to £16 sterling. As all dealings with the settlers are transacted by barter these prices can only be termed nominal. There can be no doubt but that all these varieties belong to one species, as in one instance I knew of a litter of cubs which consisted of two "blacks," a "silver," a "patch" and a "yellow." With regard to the measurements of the several varieties, my experience differs from that of Professor Baird, in that I invariably found specimens of the "patch" or cross fox materially *smaller* than either "yellows" or "silvers." I allude here to specimens measured before skinning, but of course much depends on the age of the animal.

Arctic Fox, *V. lagopus* (*Linn.*)—Tolerably common throughout the island, and is undoubtedly identical with the "blue" arctic fox, which is none other than that species in summer pelage; although in Iceland, where the same species occurs, it is said never to assume the white winter dress. This species differs considerably in habits from *V. fulvus*. The latter is ever shy and watchful, and will rarely cross the fresh "footing" of a man, or dog, or go near a baited trap until driven to do so by hunger, while the former invariably searches out and frequents the habitations of men, and is easily caught in almost any kind of trap. but the handsome white skin, which is rather smaller than that of *V. fulvus*, fetches only one dollar!

MUSTELIDÆ.

American Sable, *Mustela americana*, *Turton*; *Pine Marten*; *Marten Cat* (Newfoundland).—Still common in various parts of the island, but from the increasing, or, at any rate, present value of the fur is annually becoming scarcer. It is a bold rapacious animal, and in its habits reminds one much of the common polecat (*M. putorius*). One of the specimens I obtained entered the house of a settler and carried off a dead duck (*Anas obscurus*), but was subsequently shot in a tree near the spot,—in fact, while returning for a second duck, having probably hid the other. Marten cats are easily caught by iron traps placed in “cat-houses,” or in “dead-falls.” Without attempting to settle, or even discuss, the vexed question as to the identity of this species with the European *M. zibellina*, I may here state that very little reliance can be placed on the colours of the *Martinæ*, as a very appreciable difference exists in this particular, even in specimens obtained in Newfoundland and the Labrador, the former being much lighter throughout, but especially about the head and ears. So perceptible is the distinction that a trader readily separates the Newfoundland skins from those obtained on the mainland.

Common American Weasel, *Putorius noveboracensis*, *Dekay*.—Abundant throughout the island. Although I shot and trapped a great many weasels, both in summer and winter pelage, besides examining quantities of other skins obtained by the settlers, I was unable to find any other species. A specimen in alcohol, in the transition state, shot by me on the 1st of September, 1866, was forwarded to the British Museum and pronounced by Mr. G. R. Gray to be of this species.

LUTRINÆ.

American Otter, *Lutra canadensis*, *Sabine*.—Apparently common, if one may judge from the number of skins the traders annually obtain from the settlers. Both traders and settlers make two varieties or species (?) of the Newfoundland otters: one, which is called the “country otter,” and principally frequents inland brooks and rivers, has the fur of a beautiful shining dark liver-brown, almost black on the back; while the other variety, called the “salt-water” otter, is said (for I was unfortunate in not getting a specimen) to have the fur of a rusty brown colour, and to be considerably larger than the “country otter,” although the skin is not nearly so valuable, rarely realising more than three or four dollars, whereas good skins of the

smaller and darker variety fetch from five to seven dollars. I am inclined to think the larger variety, termed the "salt-water" otter, will prove nothing more than very old specimens of *L. canadensis*, in which the fur from age, and frequenting the sea-coast, has become coarser and browner. This may be the *L. lataxina* of F. Cuvier, and the small dark variety the *L. mollis* of Dr. Gray; neither of which, I believe, are now separable from the normal *L. canadensis*. The American otter is a powerful animal, measuring four feet in length, and swimming in the water, as well as "sliding" over, or through the snow, with great rapidity. In both operations the tail acts a most prominent part, but this can best be seen when the animal is gliding through the snow: this it does by a succession of bounds, each of which ends in a "slide," often several feet in length, the impetus to which is given by a peculiar lateral curve of the thick tail, which is provided with two powerful muscles—one on each side. The presence of these muscles can be detected, even in a dried skin, by two deep furrows, which are not even obliterated by stretching and nailing the skin to a board. The food of the otter consists perhaps mainly of fish, but the animal is by no means choice, and readily catches the young of water-fowl and eats the flesh of other animals; it has also been known to enter a beaver's house and kill the young.

URSIDÆ.

American Black Bear, *Ursus americanus*, *Pallas*.—This ungainly looking animal is still common in Newfoundland, although many are annually shot, trapped and caught in "slips:" the latter is the best plan, as it does not injure the handsome skin. This is probably the most harmless species of bear; and certainly, if we are to believe the oft-repeated tales of the dangers and difficulties incurred in bear-hunting excursions, it is also the most easily destroyed. An ounce of shot, not smaller than No. 6, is sufficient to kill the largest of the species, if fired into the intestines *behind* the ribs, at a distance not exceeding twenty yards. On this part of the coast (Cow Head) where bears are tolerably common, there is scarcely a settler arrived at the age of manhood who has not shot one or more bears, and invariably with an ordinary load of shot, such as would be fired at a single duck. There is also very little danger to be apprehended from these animals when wounded. An old English settler, one James Dacre, or Dieker, the champion bear-slayer, with whom I have pleasantly chatted away

many an hour by the log fire, tells me that he must have killed at least one hundred and fifty bears (and this I believe, for he killed six during the two years I was there), and that only one wounded one turned upon him, and this he attributed to the fault of a young dog he had with him; but he soon despatched the bear with his tomahawk. It would appear that the organs of sight are not so well developed in the bears, especially this species, as in many other of the Mammalia; but the nose and ears amply suffice for this apparent deficiency, particularly the nose. In stalking a bear it is only, and yet absolutely, necessary to keep well to leeward, and to approach as noiselessly as possible. If the bear turns to inspect the intruder on its privacy, a sudden halt must be made, although the precaution of secreting oneself is unnecessary; to remain immovable is all that is required until the bear commences walking or feeding. There is one feature in the economy of the black bear which appears puzzling to the settlers and Indians in Newfoundland, *viz.*, the period of gestation. Of the many female bears killed by these people, even late in autumn, none are found to contain young. From this fact it is pretty evident that they copulate in the fall, and bring forth their young in the snug winter caves, for on their appearance in the spring they are generally accompanied by two, rarely three, young ones. The black bear is usually a solitary animal, although five, and even six, have not unusually been seen together in the spring and fall of the year. It is exceedingly omnivorous in its habits; nothing appears distasteful to it. In the spring it frequents the sea-shore, feeding on any animal matter which may be cast up by the waves, such as putrid pieces of whales, fish, lobsters, crabs, &c. Later in the summer the various berries, such as mountain ash (*Pyrus americana*), for which it readily climbs, cranberries (*Oxycoccus palustris*), blueberries (*Vaccinium corymbosum*), &c., are its principal food, as well as the eggs of ants, and probably the insects themselves are not wholly rejected. No instance of the black bear attacking domestic cattle came under my observation during my residence on the island; in fact, on more than one occasion I saw the "footing" of a large bear in close proximity to a small flock of sheep which roamed at pleasure round the settlements during the few summer months. A scarcity of food, which, however, is not likely to occur on so thinly populated an island, may induce bears to attack sheep, and even larger domestic animals. The fondness of bears for molasses is proverbial, and many amusing anecdotes were related to me of the audacity of young bears entering

houses in search of this luxury. One method of destroying bears,—and one which I never remember to have seen recorded,—*viz.*, by “tailing” a gun, I saw successfully put in operation by the old bear-slayer, James Dacre. Two days before I visited him, at his lonely salmon “berth,” in July, 1868, he had shot a very large dog harbour seal (*Phoca vitulina*), which had lived for some time previously on spoils obtained from the old man’s salmon-nets. The fat of this seal had been cut in strips, as usual at that season of the year, and hung up outside the cabin to melt and drop into an oil-cask below. Each night a piece of fat mysteriously disappeared, and as the dog slept inside the cabin it was conjectured that the robber must be a bear; however, on my arrival I found the old man busy, as he termed it, “tailing” his gun. Being anxious to witness the *modus operandi* in this bit of woodcraft, I seated myself on the bank and lighted my pipe—? to keep off the mosquitoes. The first article selected was an empty cask with one head out: this was laid on its bulge, on the ground, in a favourable position, and firmly secured by piling large rocks on either side. A hole was then cut in the remaining head sufficiently large to admit the barrel of his gun, which was also firmly secured in the required position by wedging. A gimlet hole was then bored through the top of the cask, about midway between the ends, so that a piece of cod-line, when lowered through the hole, hung about six inches in advance of the muzzle of the gun, and to this end was tied a piece of the seal’s fat, probably two pounds in weight, while the other end of the line was securely fastened to the trigger of the gun, and the trap was complete. As I had six miles further to walk that night I was debarred the pleasure of remaining with Dacre and noting the time of the bear’s arrival, &c.: the old man slept so sound that he even never heard the report of his gun, although not five yards from his own head. The bear was frightfully shot about the head and throat, but managed to drag itself more than ten yards, before it died. It was skinned the same day, before my return along the shore, and appeared to be a young bear, probably about four years of age. The flesh of the black bear is by many persons considered a delicacy, but, for my own part, I do not care for fresh roast bear-meat; the pickled hams are, however, good eating, but require great care in preserving, as the fatty portions are apt to turn rancid.

Polar Bear, *Ursus maritimus*, *Linn.*—At one time by no means uncommon on the island, but since the extensive seal-fishery has been carried on by schooners among the drift ice in the Straits of

Belle Isle, and elsewhere round the coasts, the polar bear has become very rare—nearly, if not quite, extinct. Many of the settlers had met white bears face-to-face, but never knew them act on the offensive, although, generally, if molested, and no ready means of escape presented itself, they would fight in a most determined manner; and all bore testimony to the tenacity of life in this species. The old man Dacre informed me that on one occasion, when salmon-fishing in Portland Creek, a few miles north of Cow Head, he was awakened one morning by hearing something in his "tilt," and upon rousing himself and looking up he was startled to see a white bear staring him in the face; but although so frightened himself the bear appeared even more so, and hastily took its departure, before the old man's presence of mind had sufficiently returned to remind him that his loaded gun was by his side. Shortly after this two polar bears were seen in Portland Creek Pond, and Dacre fired a ball through one as it swam by a point of land on which he was standing; but, although not more than ten yards distant, the ball failed to strike a vital part, albeit two streaks of blood followed the bear, showing that the missile had passed through the body. It seems strange that an ounce bullet should pass transversely through the body of any animal, save of the very largest class, without destroying it, and yet it is an uncontested fact that deer, and more especially seals, often escape after receiving such wounds. As these bears were seen at Portland Creek in the month of July, it is pretty evident they escaped thither from the drift ice some two or three months before, or, what perhaps is more likely, the bears were hunting for food on shore when the treacherous and boisterous offshore wind separated their immense icy raft from the land and carried it away to the warm waters of the Gulf stream, never more to return to bear off its late and savage occupants. Some few years since two of these animals were roaming over the small promontory of Cow Head, at the back of the few houses. Neither was killed, and both soon took their departure without harming either man or beast. At the time of my first visit to Halifax, N.S., the eccentric Mr. A. Downs possessed a bear of this species, and, should these notes find their way to that province, many of my readers there will remember a rather cruel amusement of the old man's, accompanied with the usual exclamation, "Let's stir him up with a long pole!" each time suiting the action to the words. However gratifying this folly and cruelty may have been to many of his visitors, had only one bar of its large cage proved faulty, more lives than one would probably have been

sacrificed before the furious animal could have been destroyed or recaptured.

CASTORIDÆ.

American Beaver, *Castor canadensis*, *Kuhl.*—*Vide* 'Zoologist' S. S. p. 1953.

MURIDÆ.

Brown, or Norway Rat, *Mus decumanus*, *Pallas.*—As usual with all countries commercially or otherwise connected with Europe, this scavenger has long found its way to Newfoundland, where neither the severe cold of winter nor the insecure home in the little wooden store-houses seems to check its increasing propensities.

Black Rat, *Mus rattus*, *Linn.*—Said by the settlers to be occasionally taken on the southern parts of the island, but I heard of no specimens captured as far north as Cow Head.

N.B. Strange to say that during a residence of two years in Newfoundland I never could obtain, nor even see, any species of mouse; although the settlers assured me that in some seasons they literally swarmed, but whether of this genus or not I was unable to learn. Probably *M. musculus*, *Linn.*, occurs on the island, but from the accounts of the settlers I should infer is not the species which is periodically seen in such large quantities: these probably belong to the genus *Arvicola*, or to some allied genera. If true, there is something peculiarly interesting in these periodical visitations—or, I should, perhaps, rather say migrations—of mice, for I was informed that these muscine armies come from the interior, or from that direction, towards the sea, which they boldly enter, and are consequently drowned and their bodies cast on the shore "by thousands." This reads much like a romance, but I never found these good people given much to romancing, and an explanation which never occurred to them readily suggested itself to me,—whether correct or not I leave others to judge,—*viz.*, these mice, having increased disproportionately to their means of sustenance, were compelled to make a partial migration—whither? Instinct(?) led them to the sea-shore, where, following the receding tide, they would obtain an ample supply of mollusks and small crustaceans. But the tide "waiteth not," even for lordly man; would it do so for these poor starving mice? I trow not. The depressions would first be filled by the returning tide; effectually cutting off the retreat of hundreds—nay perhaps "thousands"—which may for a time save themselves on rocks, or hillocks of sand and sea-weeds, but these shortly become submerged, and the

mice must inevitably perish, and their bodies be cast on shore by the waves. Some will ask, "Is this in accordance with the laws of Nature, that animals, or rather the increase of them, shall be kept in check by the destruction of thousands at one stroke when in search of food?" Granted it is not; but I must remind such of my readers that, even in such an "out-of-the-world" place as Newfoundland, Nature is not allowed to take her course, for birds of prey are shot down there as in other countries; and, more than this, the weasel, the legitimate arch-enemy of the mouse, is extensively trapped in its white winter pelage.

ARVICOLIDÆ.

Musk Rat, *Fiber zibethicus* (*Linn.*)—This "beaver in miniature" is exceedingly common in Newfoundland; some swampy places almost swarm with them. It is generally the work of the juvenile trapper to catch them, as little ingenuity is required: it is only necessary to find out the places on the banks of the ponds and brooks, which are worn bare by their "footing," and place the iron traps there in the most exposed situations, and without the slightest covering. If the trapper cannot suit himself in selections of this kind, as is often the case where the margins are fringed with a thick growth of stunted alder, he may cut two stoutish poles and place one end of each side by side in the mud, allowing the other ends to rest on the bank; on these the traps should be placed just above water-level. This is a very good method of catching them, as the musk rats are sure to run up the sticks, and when in the trap soon tumble off into the water and are drowned. The houses of the musk rats, or "musquash," are built of mud and rushes, and are frequently of considerable magnitude, but appear to be tenanted only during the winter season: those which I had ample opportunities of examining were invariably situated in muddy, swampy ponds, where rushes abounded, and where the ice never appeared so thick as in more exposed situations. The houses were not built, as some writers assert, *on the ice*, but *on the mud* at the bottom of the shallow water, and were raised some two feet above the surface; so that, as the winter sets in, the outsides of the houses and the pond become frozen, while the water in the bottom of the houses remains unfrozen, either from the natural warmth of the interior, or by the animals themselves continually breaking it as a means of exit in search of food under the ice. To effect this, passages are left open at the bottom of the houses near the

mud, and below the influence of frost. The houses are also provided with a kind of second floor above the water-level, on which the musk rats lie on a bed of soft dry grass. Is all this provision the result of *instinct*? If so, how admirably it agrees with a like provision on the part of the Esquimaux! and again, why do not the musk rats of Louisiana provide a similar winter retreat; as also the Indians of Florida and other southern States of America? No! animals, like men, adapt themselves to circumstances. Why then separate these like senses, and term that of man "wisdom" and that of animals "instinct"? There may be fools among animals—there certainly are among men.

At the commencement of these "zoological notes" I stated my intention of following the classification of Professor Spencer F. Baird, and I have done so; but I cannot agree with that learned author in so far separating this species from the beaver, not only generically, which is right, but by the introduction of whole families, and others bearing that unnatural and unmeaning term "subfamilies." The two animals are not only intimately connected by appearance,—indeed so much so that the great Linnæus mistakably placed both in the genus *Castor*,—but those who, like myself, have lived amid the haunts of both, have invariably been struck with the similarity in their economy — and what more important points than similarity of structure and economy should take precedence in a *natural* classification?

The food of musk rats consists of the stems and roots of aquatic plants, bark, fresh-water clams (*Unios*), and perhaps other mollusks. The females bring forth six to nine young at a birth, during the summer, and appear to breed only once a year in Newfoundland. Large spring skins of the musk rat fetch twenty cents: at this season the musk-like odour is very powerful.

LEPORIDÆ.

Polar Hare, *Lepus glacialis*, *Leach*.—This is the only species of leporine found in Newfoundland, and appears tolerably plentiful throughout the island. It is a thoroughly alpine species, never descending to the plains, except when driven to do so in search of food during two or three months in the depth of winter. This is the largest species of hare with which I am acquainted; ordinary specimens weigh from nine to ten pounds, while others are said to have been killed weighing as much as fourteen pounds. The tips of the ears are black on both sides. The markings are generally very

constant, and measure nearly three-quarters of an inch long by the same in breadth; but I saw two specimens killed at Brown Point, on the N.W. coast, which differed in having the black at the tips extending down the outside edge of each ear almost to the base. This variation excited the curiosity of all the settlers who saw the specimens, and must therefore, I think, be uncommon. The flesh of the polar hare is not so palatable as that of its English representative, which is mainly owing perhaps to its winter food consisting almost exclusively of the young and tender shoots of birch, called "browse." It feeds only during the night or early morning, retiring to its "form" on the approach of day, at which time it never stirs unless disturbed. In my notes on the snowy owl (*Nyctea nivea*) I have inadvertently stated that it preys on the polar hare: other writers have said the same, but I think on insufficient evidence, and I am now inclined to withdraw that statement, as the snowy owl is chiefly a day-flying species, while the polar hare is only abroad during the hours of night or twilight. Besides, where both animals are common it is strange that this circumstance, if a fact, should have escaped the observation of the observant settlers.

CERVIDÆ.

Woodland Cariboo or *American Reindeer*, *Rangifer caribou* (*Kerr*).—Large herds of these deer still frequent the high lands, although hundreds are annually killed by the settlers and Indians, and many others by the wolves, which are continually chasing them from place to place especially during the winter months, when the majority of the deer leave the mountains and come to the plains below to feed on the "browse" of the birch. The settlers generally go on the hills deer-hunting about the middle of September, which is just prior to the rutting season, and consequently at a time when the stags are in their best condition. The table-land frequented by the cariboo is about two thousand feet above sea-level, and there, although some parts are swampy, the vegetation is scanty—so much so that in deer-hunting the few granitic boulders lying about on the surface or projecting through the thin soil supply the place of trees and bushes to screen the hunter when stalking in that barren district. In this "land of fog" it is not every day that the hunter can venture on these hills. On the 25th of September, 1866, I started on a deer-hunting excursion with four brothers of the name of Payne (originally from Dorsetshire). With a fair wind we sailed up Parson's Pond about eight miles, landed and

hauled our boat on shore, and after a walk of three miles, through woods and swamps, reached the foot of the hills about 4 P. M., and immediately commenced cutting fire-wood and putting the old broken-down "tilt" in order for camping. At that date I had not so much experience in "swinging the American axe" as I have since had, and therefore left that more laborious part to the Paynes, while I busied myself in gathering spruce boughs for our bed, which, although not so "soft as down," is a very good substitute after a hard day's fag. As the locality had been occupied on previous occasions we had only to patch up the old "tilt"; but as this domicile *pro tem* is an institution only known to the minority of my readers, I will here describe it somewhat *in extenso*. In front—or that part facing the fire—three stout forked poles, standing equi-distant, were firmly driven into the ground, so that the forks stood about five feet from the ground, on which rested another pole, from which, sloping backwards to the ground, rested others about a foot apart; these, commencing from the ground upwards, were covered, tile-fashion, with long strips of birch bark, overlapping at the ends as well as at the sides: this was kept in place by other poles being placed on top, alternately between those underneath the bark, and our "tilt" or camp was complete. In this primitive construction we were destined to spend eight consecutive nights. The day following these preparations proved wet and foggy, and we spent it in beaver-hunting on a neighbouring stream, and in cutting fire-wood—an abundance of which is generally necessary in camping out in Newfoundland, even so early in the fall as the latter part of September, for the nights are chilly. The following morning proved finer, and we ascended the hills—a rather trying undertaking to those unaccustomed to such exercise. After walking five or six miles the youngest Payne espied a small herd of cariboo, twenty-one in number, some lying down, others quietly feeding. Now ensued the "council of war." The three younger brothers and I were to immediately start, keeping well to leeward of the deer, and secrete ourselves behind boulders, as near the herd as it would be safe to go without disturbing or even raising the suspicions of the cariboo, while the elder Payne, taking one of my rifles with him, was to stalk and endeavour to drive them towards us; and so well did he succeed that, after killing two himself, only thirteen escaped. One of the younger brothers also made a very successful shot, killing two stags and a doe with a load of buck-shot. As an illustration of the tenacity of life in the cariboo, I may mention that one old stag, after being mortally

wounded with a spherical bullet from an eleven-bore gun, appeared to increase its speed for about four hundred yards, and then rolled over dead. On going up to the animal, we found that the bullet had entered on the near side of the tail, and after traversing the whole length of the body had come out in front of the near shoulder. Before we had finished grallouching the deer it commenced to snow and rain, and we hastened to sling each of us a quarter of venison at our backs and strike the homeward trail, a distance of some six miles to camp; but with eighty pounds of meat at our backs and a miserably rough track to travel, we none of us had a dry thread about us before reaching half that distance. Night had fully set in before we got to camp, and as none of us had a change of clothes we were obliged to dispense with that luxury, and immediately set to work to make a fire and cook our supper of venison steaks, which all seemed to enjoy, although not under the most favourable circumstances, but "hunger needs no sauce," and, sticking our wooden spits between our legs, we managed to stow away an amount of venison and ship's biscuit that would have astonished the majority of our stay-at-home friends. After supper came the friendly pipe, and, despite the pouring rain, we once more fought our "cariboo battle," and turned in for the night, but, although tired, not to sleep, for the torrents of rain had caused a mountain rill on each side of us to overflow, and not only put out our fire but almost swamped our little "tilt," so that we had to turn out and dig a trench round both to carry off the surplus water. With the appearance of "old Sol" the storm passed away, and we again ascended the hills, which we found covered with snow half a leg deep; however, we managed to find our deer, which fortunately the wolves had not scented, and to bring the remainder to camp. Here I again enjoyed a hearty supper, but my companions were "down in the mumps"—I am not joking: the preceding rough night had certainly affected them with that ludicrous-looking complaint of the jaws termed "mumps" or *parotitis*, and they dared not wade the brook which intervened between our camp and the lake where we had left our boat, and which, owing to the heavy rain, had swollen considerably. After waiting a few more days, which fortunately proved fine, the brook had fallen sufficiently low to admit of our carrying our loads of venison to the boat, and thence home without further mishaps. This is rather a dreary picture of cariboo-hunting, but all excursions are not attended with like results, and even if such were so, what are they to the ardent sportsman or naturalist?

The horns of the cariboo vary, I think, more than those of any other species of deer with which I am acquainted. The specimen figured by Professor Baird (No. 900, p. 364) is neither so large nor so well formed as many I saw in Newfoundland, but may perhaps be taken quite as an average specimen; in fact, I never saw two adult stags with horns exactly alike. The largest which came under my observation belonged to an immense old stag that was shot by the eldest of the Paynes who went on the hills with me: the points of these horns when the skull was reversed on the shoulders of a man five feet ten inches in height touched the ground: this magnificent pair of antlers are now bleaching or bleached on the hills above Parson's Pond. I possess a pair with thirty-two points, including those on one brow-antler, which is palmated, while the other is a mere snag: these horns, with just sufficient skull left to hold them together, weighed thirty pounds. I have seen others perfectly straight, like those of a pricket, and with the brow-antlers of similar form. I have previously mentioned the tenacity of life in this species of deer: as a further illustration of this fact I may mention that my host at Cow Head killed a cariboo, in the heart of which was imbedded a large buck-shot the size of a large pistol-bullet, and, from the hard callous appearance of the surrounding parts, seemed to have been there many months, and perhaps years: the stag was in good condition: at least four other settlers testified to this fact.

A barbarous practice was in vogue among the half-French settlers in the Bay of Islands a few years since. The cariboo on their southern migration (for deer as well as birds, and even fish, migrate partially from these cold regions on the approach of a severe winter) were in the habit of swimming across a narrow part of a large lake called the "Deer Pond," on the banks of which, at that season, were hidden both men and canoes. When a herd had entered the water and swam sufficiently far to admit of pursuit, the canoes were hastily launched, and the chase began. On coming up with the deer, knives were drawn and deep gashes made on the rump of each deer to ascertain which were fattest, and these instantly killed with tomahawks, while scores of wounded and bleeding animals were allowed to escape. The slain, perhaps sixty or seventy in number, were then collected and towed to the Humber river, which flowed from the Deer Pond to the settlement, some fifteen miles, and thence into the sea. As the Humber on this part has some rapids and cascades it does not admit of canoe navigation, and the deer were consequently allowed to

float to the settlements, where half never arrived, and half of those which did were carried on by the current out to sea. Fools, in your folly you have taught these valuable animals wisdom! Thousands which annually swam that lake now migrate by a route miles in the interior.

? *Barren Ground Cariboo*, *R. Grœnlandicus*.—Unless this species of deer occurs in Newfoundland I am unable to account for small herds of deer which are occasionally seen by the settlers, and distinguished by the name of "little black-legged deer." They are well known to the settlers, but none have been killed at Cow Head for the last five or six years. The last herd seen consisted of sixteen individuals, of which four were killed, including one old stag, which was said not to weigh so much as an ordinary doe of the woodland cariboo, although very fat. These deer appeared to differ in one respect from descriptions of *R. Grœnlandicus*, *viz.* in having the horns *smaller* than the preceding species; but then it is a well-known fact that the horns of the same species of deer are much smaller in southern latitudes than they are in their high northern ranges. I must, however, leave the identification of this species in Newfoundland to some other zoologist.

HENRY REEKS.

Thrupton, Andover.

Remarks on the Abnormal Plumages of the Goldfinch.

By H. BLAKE-KNOX, Esq., J.P.

I. *Albinos and Whites*.—The real albino, in which the plumage is healthy, succulent and plumous, of a milk-white colour; pink eyes; flesh-coloured bill and feet. This is natural, if we may use the term, for an albino lives and dies an albino. With respect to albinos there have been some rather stupid remarks made in the pages of the 'Zoologist:' that which has struck me as particularly so is denouncing albinism as unpermanent—that is, that the bird will become of the normal colour when it moults, for the simple reason that we do not see a race of albinos of any given species of which individual birds have been met with. I should think it very remarkable if an albino in Britain lived to see Christmas-day, for in all probability those who most denounce theoretically this defect, for it is not a disease, would decidedly do so practically by an ounce

of shot. I do not think a true-coloured bird would acknowledge an albino as belonging to its species, and when normal-coloured birds are plentiful it would not take so strange a mate. It is well known what animosity is shown to a white bird by others of the same species. I am very certain that in civilized England a male and female albino of the same species will never be allowed to pair, if they should even chance to outlive the fusilade of an autumn, winter and spring. Even without man's destructive opposition it would be strange if two albinos of the same species met in the same locality—they must also be of opposite sexes; stranger if nothing befel their nest and their exceedingly delicate progeny. Would the progeny of necessity be albinos? I hope these remarks may explain why albinos are not more common. The white-heads we read of so often in these pages are, perhaps ninety-nine to the one hundred, not albinos. Those who fancy albinism relates to the ermine, the ptarmigan, &c.,—which change to white in winter, and change colour again, without moult, in spring,—are quite astray; likewise those who think a white fowl or a white rabbit an albino. Albinos have no colour anywhere stronger than pink or flesh-colour, even in the eyes. Instances of albinism occur in the human animal, and are common amongst many of the lower orders of creation. Those who discredit the permanence of this defect should of course expect an albino woman or rat to turn any day into the common appearance as easily as in a bird. I need not say that this does not occur. Albinos of the goldfinch are very rare.

II. *Parti-coloured, Pied, or Birds with White Feathers, abnormal but not unnatural.*

1. Promiscuously variegated. Not uncommon.
2. White, systematically arranged. Uncommon.
3. Devoid of red upon throat, white instead. Not rare. Called "cheverels:" these breed "cheverels."
4. White-headed.

These four varieties are often quite permanent and healthy.

5. Has a permanent spot of white, as large often as a pea, in the black at the occiput; it is peculiar. I have one of these birds caged, but the spot is not nearly so large as in some I have seen: it is permanent: he is evidently very old, has copper-colour, not crimson, on the head, and very white cheeks.

III. *Parti-coloured, Pied, Yellow, Cream-colour, Muddy, or White-feathered Birds, abnormal and unnatural.*—Caused by a wrong distribution or entire loss of pigment, from disease, debility, shock, &c. This ailment is often cured at the succeeding moult—frequently at that time reaches its crisis, the whole plumage dying, but still remaining on the skin. Birds that I have shot in this dreadful state are always most emaciated.

1. White feathers through the plumage.
2. White feathers, tinged with yellow.
3. White, tinged with buff or cream.
4. Entirely white, but not albinos.
5. Fawn or white.
6. Fawn or cream-colour.
7. Gray with age.
8. Dead bleached feathers.

These abnormalities generally occur to first-plumage birds, and are rectified at the next moult; they are more or less common. The bleaching of sapless feathers is very common in young birds and extremely old ones: in youth I have seen the young moult issuing, and though the body is emaciated, still there can be no doubt the moult would eventually prevail. In old birds it seems to be caused by exhausted energies, and is fatal. In the young of the starling this occurs more than in any other bird, the brown first plumage willingly bleaching to a faded or deep cream-colour.

9. There is a scarce variety in which the head is cinnamon, like the back. Birds reared from the nest should be liable to this, always retaining the plumage of the "gray pate."

IV. *Black.*

1. Pure black. Rare in the goldfinch: it is decidedly caused by age, perhaps promoted by peculiarly rich feeding. The yellow of the wing generally remains as bright as originally. I have never seen wild goldfinches black, but have caged birds.

2. Dusky, dingy or sooty. A suffusion of these dull shades through the plumage is not uncommon in caged birds. It generally affects the yellow on the wing as well as the rest of the plumage. It is very different from the healthy black plumage.

3. Where the wings are all black, without yellow. This occurs even with the rest of the body normal. Permanent.

4. Where the carmine of head is black. Permanent.

V. *Crimson abnormalities.*

1. Black of head intermingled with crimson feathers. Common.
2. Black of head all crimson. Rare and beautiful.
3. Cheeks carmine, flesh-colour, yellow, copper or crimson, instead of white or tawny.
4. A moon-like spot of carmine at each extremity of the white line across occiput. These birds are called "moons."
5. When the moons meet, filling up all the white occipital line. Very scarce. Beautiful indeed is this aurora-like effect. They are called in Dublin "Duncans."

I got a "moon" last autumn; but this pretty effect seems transitory: it has already faded from rose-colour to copper-yellow. It remains to be seen whether it will remoult again. Fanciers tell me that both "moons" and "Duncans" are permanent. I have mentioned cases of loss of crimson under other headings.

VI. *Mealy Goldfinches.*—Mealy birds have the appearance of being sprinkled with dust or meal: it is caused by a fringe of drab to each feather, even to the black and crimson of the head. The effect is curious. "Such birds breed cheverels." I saw a marked instance of this fringing last December: I questioned some fanciers on the subject, suggesting that they might be first-winter birds, but they say it is permanent.

VII. *Yellow.*

1. When the crimson of head is gold and even cream-colour: this is generally caused by season or ailment. Common.
2. When the breast becomes resplendent yellow. Rare. I have one living: it was sent to me for its weight in gold, which I did not give, however. Anything to equal the beauty of this bird I never saw: crimson of crimson was the head, and very extended; black of the deepest the dark parts; exquisite cinnamon-colour the back; snow-white the cheeks, throat and under parts; the breast of a glinting brass-yellow; it also had the rose-coloured stripe at the back of the head. I could not kill the beautiful creature, nor would I let him go; so I caged him. I am sorry now I did not add him to my collection, for he seems untameable, and quickly losing all the resplendent tints, and as these bright colours dissipate in confinement I expect him next moult to turn out a common-looking bird.

H. B.-KNOX.

Ornithological Notes from North Lincolnshire.

By JOHN CORDEAUX, Esq.

(Continued from Zool. S. S. 1979).

DECEMBER, 1869.

Storm Petrel.—A storm petrel was shot, on the 1st of December, by Mr. Gilbert, gamekeeper to Lord De Grey and Ripon, in Dunston Fen, in this county, a distance of thirty miles from the coast: it was flying at a great speed at the time. I have heard of two other occurrences of the petrel inland in Lincolnshire, about the same date.

Pied Wagtail.—Several heard during the winter up to this date. They frequent the sheep-folds in the turnip-fields, consorting with the meadow pipit, and are usually in close attendance upon the sheep, from whose parasites they probably obtain many a meal: they also search the heaps of freshly-pulled turnips for the grubs and larvæ of insects concealed about the roots of the bulbs: from these sources they obtain a constant and plentiful supply of insect-food. I am inclined to think that the greatly increased cultivation of the turnip during the last twenty years in this district, and the system of folding sheep upon them during the winter, has supplied a source of insect-food not otherwise available, and offers an inducement to the wagtails to remain through the winter. It is only during the last fifteen years that the turnip has been extensively cultivated in our marsh district, and previous to this time the wagtail was unknown as a winter resident. I seldom (unless in very severe weather) see them during the winter except about the sheep-folds. In the early spring, when a supply of insect-food is brought to the surface by preparing the land for the seed, the wagtails betake themselves to the freshly-broken soil, and their numbers are then augmented by large arrivals from the south. I have remarked (Zool. S. S. 1669) on the absence of this species during the winter of 1868-69, when, in consequence of the dry summer, the turnip crop throughout this district, and over a great part of England, was an almost total failure.

JANUARY, 1870.

Kittiwake Gull.—January 1. I received two of these gulls this morning, captured in the North Sea, having got entangled in the

drift-nets of one of the Grimsby herring-smacks. They are birds of the year, in the plumage of the first winter, and agree closely with the description given by Mr. Blake-Knox (Zool. S. S. 550) of the plumage of this gull in the first winter: they differ, however, in their feet, which are a greenish gray, and not black, and the colour of the inside of the mouth, which is orange-yellow, and not yellow. This species, as Mr. Blake-Knox observes, is strictly an ocean bird: I have never met with it on the land.

Plover, Green and Golden.—Perhaps the most striking feature of our marshes at this season is the immense flocks of golden and green plover, which we daily see by thousands together, either on the wing or feeding in the extensive grass marshes for miles skirting the Humber embankment. This winter is, however, a most exceptional one, as I have only noted one small flock of peewit since the 11th of November, on which day I recorded the extraordinary flight of this species towards the N.W. (S. S. 1978). Our resident golden plover are restricted to two or three small flocks, which, as they invariably choose the centre of our largest fields, are practically unapproachable. The character of the present winter is much like those of the two previous years, when we had an abundance of both species; and I know of no local cause to occasion their absence from the district.

Rooks and Wood Pigeons.—The turnip crop of 1869 in this district has been subjected to the attack of a small beetle known as the turnip weevil (*Nedus contractus*, Newman).* The bulbs are more or less covered by a mass of knobs and rugosities, in many cases completely altering their shape and impairing both the quality and growth of the root: each of these knobs or excrescences contains a small white grub, much sought after both by rooks and wood pigeons, which come daily to feed upon them: they break open the knobs and extract its inhabitant. I lately examined a field, half of which is sown with yellow and purple turnips in equal proportions, and the other half with swedes; scarcely a bulb had escaped the attacks of this insidious enemy. The swedes, however, had suffered in a less degree than the common and softer turnips. I had some trouble to find a bulb which had not been pierced by the rooks and wood pigeons. In every case the top only of the knob was broken away, leaving just sufficient room to permit the extraction of the grub. Unfortunately this operation is anything but beneficial to the root, letting in both the wet and

* I am indebted to Mr. Newman for a description of this insect.

frost. Evidently the only object of the birds was to get at the grub; but I now see that as the supply becomes exhausted they have commenced digging into the solid bulb, by enlarging the holes from which the grubs had previously been extracted.

Blackbird.—During the late hard frosts I observed one morning a fine old male blackbird wading, snipe-like, over the mud in the centre of the great main drain which intersects this parish: he was thrusting his yellow bill under the water, and picking some small substance from the surface of the mud. The water, owing to a mud-bank having accumulated across the stream, was not more than one to two inches deep at this place, which, from the number of foot-marks, had evidently been much resorted to. The attraction was doubtless due to the presence of the water-snail (*Physa fontinalis*), several of which I took at this place by passing my hand over the surface.

White Partridge.—With reference to Mr. Harting's note (S. S. 2023) on the white partridges shot in Yorkshire, I examined, a few weeks since, a partridge which was shot by a friend in the South of Durham, close to the Yorkshire border. He called it a "white partridge;" I can best describe it, however, as a *very pale variety* of that bird, and there are distinct traces of a pale chestnut shoe on the breast.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,
February 7, 1870.

Errata.—"Notes from Spurn Point," Zool. S. S. 1943, line 35, for *side read tide*; p. 1945, line 4, for *linhorn read stinkhorn*; line 19, for *Newsund read Newsand*.—
J. C.

Ornithological Notes from Norfolk—September to December, 1869.

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

(Continued from Zool. S. S. 1913).

SEPTEMBER.

Cormorant.—In the 'Zoologist' for November last (S. S. 1921), Mr. Gunn recorded the occurrence of a cormorant inland, on the 1st of October, on the lake at Kimberley, an immature female: I also received a young bird, sex not identified, on the 22nd of September.

Honey Buzzard.—An immature male was shot at Weyborne, on the coast, on the 18th of September. The stomach contained the remains of honeycomb and wasps.

OCTOBER.

Storm Petrel.—Between the 18th of this month and the 1st of November a very considerable number of these birds, storm driven, appeared on our coast, of which upwards of twenty specimens were either shot or picked up dead in different localities, but chiefly in the vicinity of the sea. Some few, however, as usually occurs at that season, were met with far inland, one being picked up dead near the Foundry Bridge, Norwich, on the 19th of October, and another at Catton on the 21st, more than twenty miles from the coast: another was found dead at the foot of a tree in a plantation at Catton, against which it had probably flown in the night. About this time many were seen, sheltering from the heavy storm outside, in the outer harbour at Lowestoft, on the Suffolk coast. Some of these birds had a few minute black seeds in their stomachs.

Forktailed Petrel.—But one example of this rarer species has come under my notice this autumn, shot on the North River, near Yarmouth, on the 26th of October.

Pomarine and Buffon's Skuas.—On the 30th of October a pomarine skua (apparently in its second year's plumage) and a Buffon's skua (a bird of the year) were sent up to Norwich, from Clay, next the sea, with two or three storm petrels.

Gray Phalarope.—A single bird was killed at Stalham on the 18th.

Little Gull.—On the 23rd of October an immature specimen was sent me from Salthouse, and a second, in similar plumage, was killed at Blakeney, on the 30th, by Mr. R. Upcher, which was consorting at the time with some gray plovers, in a marsh near the sea, which was partly flooded from the sea breaking over the banks during the recent gales. The feet and legs in my own specimen, when recently killed, were of a livid pink colour.

Purple Sandpiper.—On the 30th a single specimen of this sandpiper was shot at Blakeney by Mr. R. Upcher.

NOVEMBER.

Fulmar Petrel.—A grayish-looking bird of this species, somewhat scarce on our coast, was shot whilst swimming in the river Bure, near Yarmouth, on the 3rd of November. The worn and weather-beaten state of the plumage was explained, on dissection, by the appearance of an old shot-wound and a piece of tarred rope in the interstices,

which had become knotted and inflamed, fully accounting for the bird's unhealthy appearance.

Hybrid Fowl and Pheasant.—A fine cross-bred bird, apparently between a Dorking fowl and a pheasant, was shot near Cromer, on the 8th, and exhibited marked features of both parents: it proved a female on dissection.

Woodcock.—Very large bags have been made during the autumn and winter, almost throughout the county, but chiefly in coverts situated on the north-eastern part of our coast, in the neighbourhood of Cromer and Holt. Near the latter spot, about the last week in October, twenty-seven cocks were killed in one day, and from eight to ten couples were reported in various localities, some being killed in spots where they are rarely if ever seen. A Yarmouth correspondent of 'Land and Water,' under date of November 20th, writing of the large numbers killed recently both in Norfolk and Suffolk, in plantations near the sea, stated that twenty-two cocks were killed in one covert alone, on the 5th of November, and twelve in another, all in good condition, but exhausted after their flight. The great day of the season, however, was at Hempstead, near Holt, on the 16th, when four guns killed forty-nine woodcocks, and on the previous day, on the same ground, ten and a half couples were bagged and three and a half couples picked up or shot by the keeper; and on the 20th, on an adjoining estate at Bodham, the same party shot thirteen couples in an hour and a half; and, again at Hempstead, on the 23rd, five and a half couples: altogether, as I have since heard, six out of seven woodcocks killed on the 1st of February, 1870, completed the large number of three hundred woodcocks bagged by the Messrs. Buxton on their manors in this part of the county. A resident at Hempstead, well acquainted with these coverts, which have always been noted for woodcocks, believes that if they had been looked about ten days before at least one hundred cocks might have been killed in one day, by sportsmen accustomed to walk and shoot in the "high fell." He had never before seen so many, and of an evening, on the adjoining heath, twelve and fourteen were observed on the wing at one time. A curious and very unusual variety, killed at Runton, near Cromer, was announced in the 'Field' of the 13th of November, as a "black woodcock," but from Dr. Selater, Professor Newton and others, who examined it, when exhibited at a meeting of the Zoological Society, I learn that it was considered as an example of incipient melanism, and had been following the fashion of the so-called Sabine's snipe.

It was not really black, but had some very black patches upon it, and somewhat resembled, as Mr. Newton informs me, a dark variety killed in Hertfordshire in the autumn of 1868.

Kingfisher.—A considerable number of these birds were brought in to our birdstuffers in the early part of November, which, from the mildness of the weather at that time, must have been chiefly migrants. One man received upwards of twenty in about a fortnight, and thirty-eight between the beginning of September and the 1st of December.

Shore Lark.—On the 7th of November a young male of this formerly rare species was shot on Breydon Wall, near Yarmouth; another on the beach, on the 18th of November; and a third, in the same locality as the first, on the 27th of November.

Richardson's Skua.—An immature bird, in very dark plumage, was killed on the 24th.

DECEMBER.

Goshawk.—An immature female of this now rare visitant, was trapped at Filby, near Yarmouth, on the 3rd of December: the stomach was entirely empty.

Shore Lark.—Two more shot at Mantby, near Yarmouth, on the 14th.

Peregrine.—A fine adult female shot on the Bure, near Yarmouth, on the 11th.

Hen Harrier.—An adult male killed at Horsey, near Yarmouth, on the 18th.

Merlin.—A beautiful adult male was purchased in Yarmouth Market on the 31st.

Swan.—On the 30th of December a splendid old male was killed near Yarmouth, and, as usual, two or three females and young birds have been sent to our market with other fowl, but in spite of the sharp weather which commenced on Christmas-day nothing particular occurred in the way of wild fowl up to the close of the year.

HENRY STEVENSON.

Ornithological Notes from South Devon.—Great Northern Diver. These birds, in immature plumage, are unusually numerous this winter in Torbay. The first of these fine divers was shot on the 17th of December, since which I have heard of no less than eight or nine of these birds being obtained in the bay, and of course many others have been seen. A pair of great northern divers, in full plumage, with black head, &c., were shot in the bay some years ago: they are the finest pair I have ever seen: they are now in the possession of Mr. Rodway, of this town. The redthroated

divers, on the contrary, have been and are scarce in the bay, only a pair or two having been shot this winter.

Longtailed Duck. A young male of this fine species was shot in the bay, on the 20th of December: its stomach contained, as Mr. Burt, the curator of the Museum informed me, the small shell *Venus ovata*. These ducks, as naturally would be supposed, are of very rare occurrence in Torbay.

Slavonian Grebe. Two young birds shot in the bay on the 20th of December; another was shot on the 9th of January. This and the great crested grebe are the most numerous species of the family in Torbay.

Redbreasted Merganser. On the 21st and 22nd of December redbreasted mergansers were observed in some numbers in the bay: as far as I know none have been killed.

Pochard and Goldeneye. An adult male pochard and a female goldeneye were shot in the bay on the 28th of December. The late severe weather has brought considerable numbers of wild-fowl into the bay.

Blackbird. A curiously pied female blackbird was shot, on the 3rd of January, near Paignton: its whole back was pure white, as also the upper tail-coverts and the outer tail-feathers: the rest of the plumage was of the usual colour. It was an adult bird.

Goosander. A very fine adult female was shot in Torbay on the 11th of January.

Common and Velvet Scoter. A flock of common and velvet scoters was observed a short time ago in the bay, close in shore. Two adult males of the former species were shot on the 12th of January. These birds seem to feed on *Solen*, as I found the stomach of one which I dissected to contain fragments of *Solen Ensis* and *S. Vagina*: both these shells are found in great plenty on this coast.

Siskin. Observed a pair of these birds on a rose bush in my garden on the 15th of January: they were remarkably lively, and, judging from their bright colours, seemed to be adult birds. These birds are very unusual in this neighbourhood: they have not made their appearance in this part of the country for a great many years previously.

Lesser Spotted Woodpecker. One of these birds was shot near Newton, on the 28th of January.—*A. de Hügel; Florian, Torquay, February 9, 1870.*

Rare Birds in West Sussex, 1867-9.—December 16, 1867. Saw a young male hen harrier, which had been killed at Sidlesham; on the 18th, a female eider duck, killed at West Wittering; and on the 24th, a young male shoveller killed near Chichester.

January, 1868. An adult male goosander, in good plumage, killed at Birdham, and purchased for the Chichester Museum collection.

April 17. Saw a peregrine falcon at Chichester, recently killed in the neighbourhood of Arundel.

November 11. Saw at Chichester a gray shrike, killed a short time previously near Sidlesham: the man who stuffed it tells me that he has had more than seventy terns sent him from the neighbourhood during the autumn; they were principally arctic and common, with a few lesser; all cut up for plumes. On the 25th, an immature longtailed duck near Chichester.

April 11, 1869. An adult male little bittern, in fine plumage, shot at Runcton, near Chichester: I saw this bird a few days after it was killed.

August 4. A specimen of Montagu's harrier, killed near Selsey: I saw it in Chichester soon after. On the 10th, obtained an example of the spotted redshank, from Pagham Harbour, in immature plumage.

October 9. Shot a quail in a rough piece of ground covered with furze and heath: the crop and gizzard were crammed with seeds, I think of a thistle. The quail is seldom met with in this district, though they have been known to breed here.

November 17. Saw two snow buntings, which had been shot near Selsey.—*W. Jeffery, jun.; Ratham, Chichester, February 5, 1870.*

The Iceland Jer Falcon in Cornwall.—Just after the issue of your last number of the 'Zoologist,' I received a letter from Captain Fisher, in which, in reference to my note (S. S. 2017), he says, "I should have written, but from being too unwell, to inform you of what I think you are ignorant, viz. that there have been lately three large importations of this fine falcon from Iceland direct for falconers' use, and I have little or no doubt but that your so-called Cornish specimen of *Falco islandicus* will turn out to be one of these birds, almost certainly I think from Cardiff, where most of them have lately been kept, trained and flown loose for months." Looking at the relative positions of Cardiff and St. Merryn on our north coast, and the easy distance across the Bristol Channel for a falcon's flight, I fear I must relinquish its claim to be a true British and Cornish-killed specimen.—*Edward Hearle Rodd; Penzance, February 3, 1870.*

Lesser Gray Shrike, Shore Lark and Temminck's Stint near Great Yarmouth.—I have lately received specimens of the lesser gray shrike (*Lanius minor* of Temminck), with a black band on the forehead and rose-tinted under parts,—the shore lark (apparently young birds of the year), and Temminck's stint, all obtained recently in the immediate neighbourhood of Great Yarmouth.—*Murray A. Mathew; Weston-super-Mare, February 4, 1870.*

Occurrence of White's Thrush at Ballymahon, County Longford.—The following particulars respecting the occurrence of this rare thrush in Ireland were kindly sent me by the Honourable King Harman, of Newcastle, Ballymahon. It was shot in the spring of 1867, by a gamekeeper of the Hon. King Harman, who mistook it for a small hawk or cuckoo. I examined this bird myself at the stuffer's (Mr. Glenon's, of Wicklow-street, Dublin), in 1867; but as I did not see it in the flesh, I must admit I did not give it as much attention at the time as I ought. This is its second occurrence in Ireland, and fourth recorded as occurring in Britain up to 1866, the date of Newman's Montagu. In this useful Dictionary the following occurrences are quoted from Yarrell:—Lord Malmesbury's bird, January, 1828; Mr. Bigge's specimen (New Forest), no date; Mr. Spraine's specimen, Bandon, County Cork, December, 1842. Mr. Newman writes that a doubt has been expressed whether White's thrush is not a mere variety of our common song thrush, but thinks this can apply to British examples only: it certainly could not apply to this bird. It is quite similar to birds from South Siberia and Japan.—*H. Blake-Knox; January, 1870.*

Pied Blackbirds.—Three specimens of pied blackbirds, two males and one female, have occurred this year at places within a few miles of Birmingham, one of the males—a very beautiful specimen—having its head, scapularies and wing-coverts white, with but few small black feathers marring its purity in those places; the rest of the plumage was irregularly broken with white. The female bird had its feathers picked out on the

back and sides with various white markings. All of these, in the flesh, I saw myself at the shop of Mr. Franklin.—*A. M. Browne*; 369, *Westminster Place, Pershore Road, Birmingham*.

Ruticilla tithys and *R. Carii*.—I am very much obliged to Mr. Blake-Knox for his criticism of my account of *Ruticilla Carii* in the 'Birds of Europe,' and also thank him, in common with other ornithologists, for the new facts which he has given us as to the moulting of *Ruticilla tithys*. When my work first appeared I had a long and interesting communication from Mr. Gatcombe, of Plymouth, in which he expressed his conviction that the so-called *R. Carii* was only the gray intermediate plumage of *R. tithys*. My remark "moulting plumage" was perhaps not sufficiently precise; but Temminck used a somewhat similar expression when he remarked that probably *R. Carii* was only *R. tithys*, "qui aurait conservé jusqu'au printemps, sa robe d'automne." My remark that we were not likely to see *R. tithys* in "moulting plumage" was a hasty expression that disregarded the fact that the said bird was a winter visitant. I do not think any British ornithologist has had so many British specimens of *R. tithys*, in all plumages, pass through his hands as Mr. Gatcombe, and therefore I drew his attention to Mr. Blake-Knox's paper, and I append his remarks. Now these remarks are very important. Mr. Gatcombe says that he does not believe the male black redstart ever loses the black plumage when once attained, but during the autumn and winter the tips of the feathers are long and tinged with brownish gray, which becomes abraded or worn off during the spring, &c.: "I have killed old male black redstarts in the dark plumage at different times throughout the whole winter." It is quite possible therefore that the so-called *R. Carii* is the *young of the year* of *R. tithys* in imperfect plumage, and that in the second year it becomes *R. tithys*. It would make no difference in the supposition that *R. Carii* should breed together and in different localities from the older birds, as shown by the Abbé Caire: and the whole difficulty would in this case be solved. It is unfortunate that we have no opportunity in this country of studying the birds during the breeding periods. If the supposition I have thrown out be correct, *R. tithys* will be found no exception to the rule which obtains in the family of moulting in autumn. It matters not whether the change called "moulting" takes place by the renewal of new for old feathers or by a change in the structure of the old ones. I see Mr. Gray, in his excellent 'Hand List of Birds' (part 1), has placed *Carii* as a synonym of *tithys*. It will, however, be a curious and interesting fact if it is proved hereafter that all the year-old young *tithys* breed in their autumnal coats for the first time.—*C. R. Bree*; *Colchester, February 7, 1870*.

Lapland Bunting near London.—Last week I was fortunate enough to obtain a fine living specimen of the Lapland bunting that was captured a few miles south of London, in October, 1869. I have placed it in one of the aviaries in the Zoological Gardens, where I hope it will live and thrive for a long time.—*F. Bond*; 203, *Adelaide Road, South Hampstead, N.W., February 16, 1870*.

Song of the Chaffinch.—I have been looking over the recently published second edition of Mr. E. H. Rodd's interesting 'List of British Birds, as a Guide to the Ornithology of Cornwall' with great pleasure, but am surprised to see, under "Chaffinch," the statement, "Sings occasionally in open weather throughout the winter," as it is quite opposed to what I, from the observations of many years, consider to be the habit of the bird as regards its song, which I believe is never

commenced until indications of the return of spring are apparent; and so associated in my mind is it with vernal tokens that the pretty but short succession of notes given by this elegant little bird early in February is then to my ears what the sight of the early snowdrop is to my eyes—a witness of lengthening days and brightening skies. For many years past I have made notes for a “naturalist’s calendar,” after the manner of good old Gilbert White of Selborne, and from among them extract the following dates as those at which the chaffinch’s song was first heard in the years named, in the neighbourhood of Plymouth:—February 12, 1858; February 16, 1860; January 27, 1861; January 31, 1862; January 31, 1863; February 2, 1865; January 24, 1866; February 10, 1867; February 11, 1869. I am pleased to find the observant Waterton writing as follows, in his most charming essay on this bird:—“The chaffinch never sings when on the wing; but it warbles incessantly on the trees, and on the hedge-rows, from the early part of February to the second week in July; and then (if the bird be in a state of freedom) its song entirely ceases. You may hear the thrush, the lark, the robin and the wren sing from time to time in the dreary months of winter; but you will never, by any chance, have one single note of melody from the chaffinch. Its powers of song have sunk into a deep and long lasting trance, not to be roused by any casualty whatever. All that remains of its voice, lately so sweet and so exhilarating, is the shrill and well-known monotonous call, which becomes remarkably distinct and frequent whenever the cat, the owl, the weasel, or the fox are seen to be on the move.”—*T. R. Archer Briggs*; 4, *Portland Villas, Plymouth, February 2, 1870.*

Pied Crow.—Yesterday morning a man in the employ of the Rev. W. H. Gretton, Burley Wood, East Woodbay, Hants, shot a crow which had been watched with much interest in that neighbourhood for several weeks, many futile attempts to kill it, on account of its peculiar appearance, having been made. On examination it was found that seven feathers of one wing, and five of the other, besides the plumage on a portion of the neck, were of a pure white colour. This *rara avis* is in the possession of the Rev. W. H. Gretton, who has arranged for its preservation. The crow is believed to be one of last year’s birds.—‘*Times*,’ *February 3, 1870.*

Reported probable occurrence of the Ptarmigan in Yorkshire.—Mr. J. E. Harting is in error in supposing, in my remarks on Mr. Grainger’s letter (*Zool. S. S.* 1951), that I referred to Yorkshire as a locality for the ptarmigan, and furthermore might have seen, by a reference to the ‘*Ibis*’ for 1865 (p. 427), that I make no reference to *Lagopus vulgaris*, in the list furnished by me to Mr. More of the *nesting* birds of Yorkshire. Mr. Harting quotes extensively from Mr. More’s paper, to show that the ptarmigan has never been found in Yorkshire, but as Mr. More’s paper refers exclusively to “The distribution of birds in Great Britain during the nesting season,”* and as the ptarmigan does not nest, I believe, in October, the quotation perhaps scarcely applies. The birds described in the newspaper as “four white partridges,” and *since* described to Mr. Harting by the writer of the paragraph as being “cream-coloured,” and forming part of a covey of the same variety, might probably, I considered at the time, prove to be ptarmigan, accidental stragglers from their high northern haunts.—*Alwin S. Bell.*

* “Our census is necessarily limited to the nesting season, that being the only time when the birds can be treated as stationary.”

Nesting of the Great Bustard in England.—Mr. Moor's notice in the February number of the 'Zoologist,' on the occurrence of the great bustard in Norfolk and Suffolk, more than half a century ago, is extremely interesting; and I should much like to know whether the case of bustards he refers to, then in the possession of the Rev. R. Hammond, of Swaffham, Norfolk, is still in existence? Now and again stray bustards may be killed in England, but their days as a breeding species in this country are past. It would therefore be as well to put on record every authentic instance of their nesting in Great Britain; and in the hope that some varied information on the subject may be elicited, I will add that there is now in the Museum at Scarborough, amongst a very poor oological collection, a faded, cracked, time-worn egg of the great bustard: the interest attached to it is, that it is an authentic English-laid egg. A note alongside the egg states that it was found by Mr. James Dowker, at North Dalton, in the East Riding of Yorkshire in 1810,* and was presented to the Museum in March, 1840, by Dr. John Bury, then its Secretary. The note adds that Mr. Dowker shot at the same time, and near the egg, a male and female great bustard, with the right and left barrels of his gun. Mr. Roberts, the Curator of the Scarborough Museum, told me that the late Mr. John Wolley was so interested in this egg that he offered him a considerable sum of money for it, if it could be parted with by the Museum. I was thinking last year, when I looked at the Scarborough Museum egg of *Otis tarda*, that perhaps it was the only egg of its species, laid in England, now extant: however, Mr. Moor's interesting recollection of Mr. Hammond's case, with its young one and egg and three adults, shows otherwise. I trust that these notices may induce other readers of the 'Zoologist' to add to our information on this subject.—*H. W. Feilden; Chester Castle.*

Great Bustards on the Yorkshire Wolds.—The notice of bustards in the counties of Norfolk and Suffolk, by Mr. E. J. Moor (Zool. S. S. 2024), is of much interest. The Yorkshire Wolds were also formerly a resort of these birds, and an egg now in the Scarborough Museum was found on a moor near Salton, in Yorkshire, in 1816,* and a bird (*Otis tarda*, Linn.), supposed to be the last, was killed by the Scarborough hounds in the same year, and brought to Scarborough and cooked at a supper given by the the hunt, at the George Inn. Mr. Williamson thinks the egg in the Museum may have belonged to this bird, as it was found about the same time and on the same moor. The fine pair of great bustards in the Scarborough Museum were purchased of Mr. Reid, of Doncaster, and presented to the Museum many years ago by the late Dr. Murray, of Scarborough. I may add that a great bustard was found, only a few years since, dead and floating in the sea close to the shore, near Bridlington, in Yorkshire; and Mr. Williamson, who was curator for twenty-seven years to the Scarborough Museum, remembers that, when a young man, he had heard of bustards being seen four or five together on the Wolds.—*Alwin S. Bell.*

Land Rail found alive in a Pea-rick in January.—Through the kindness of a gentleman in the Tedworth Hunt, I was informed that some labourers, while engaged taking in a pea-rick, in the parish of Monxton, had discovered and captured a live land rail (*Gallinula crex*) in the centre of the rick; also that the bird had passed into

* The reader will please observe the discrepancy in dates: both are clearly written. The same egg is evidently referred to.—*E. N.*

the hands of a friend of mine, Mr. W. Farr, of Abbots Ann, a thorough sportsman, and one of the best shots in Hants. This occurred on Saturday, the 29th of January. On the following Friday I rode over to make inquiries of my friend, and, if possible, get a peep at the bird, and glean all particulars. Sure enough the main facts were correct: the bird was found alive in the rick, and some little distance from the outside, but in the most emaciated condition possible. The warmth of my friend's dining room, and some small pieces of raw beef forced down its throat, soon brought the bird round sufficiently for it to stand on its legs. The next day (Sunday) it had so far recovered as to run about the room and set up its feathers in a menacing manner; at the same time it would readily take small pieces of raw meat from the hand. Although my friend used every endeavour to preserve the bird's life, it died on the following morning, and, on my arrival, was most obligingly handed over to me for preservation. The bird was a male, in good plumage, but in the most wretchedly starved condition imaginable, and before it was skinned weighed just two ounces! There was no appearance of any wound, but the bird was no doubt unable to take its migratory flight, and had worked its way into the pea-rick as far as possible for warmth. How long it had been there is hard to say, or whether it had obtained a very scanty supply of food in so confined a space. Pea-ricks usually abound with coleopterous insects, especially Coccinellæ. The stomach contained only the remains of the small pieces of raw beef.

—Henry Reeks.

Eider Duck in Dublin Bay.—Since the middle of December, 1869, a considerable flock of eider ducks (*Anas mollissima*) have frequented our bay: I find they have been noticed by several persons. I have not seen the flock myself, but "white-backed ducks of a large size" have been quoted to me, by which description I guessed them to be eiders. To-day, owing to the kindness of Messrs. Williams, taxidermists, 3, Dame Street, I am enabled to a certainty to record the occurrence of this species in our waters last December. I was shown a fine young male in a transition state of plumage, being equally in first plumage and that of the forthcoming spring, which latter much resembles that of an adult male, though I believe the eider does not breed its first spring, and also that, like many of our common ducks, young males at a year old, though in similar plumage to adult birds, are neither so pure in colours nor so plumed as old birds. This bird was received in the flesh: it was shot by Mr. William Henderson, of Clontarf, on the 27th of December, 1869. Thompson (vol. iii. p. 114) mentions one taken alive at Balbriggan, in this county, in 1840, on the 23rd of May. This is the first specimen I have seen killed in Dublin County.—H. Blake-Knox; January 21, 1870.

Rednecked Grebe in Bedfordshire.—While at Wilden, six miles north-east of Bedford, I received a rednecked grebe (*Podiceps rubricollis*), which had been picked up on Friday, the 11th of February, in a farm-yard about a mile and a half from the river Ouse. It proved upon dissection to be a female, and was in winter plumage. The neck is slightly rufous in colour, and the cheeks are lighter than the surrounding parts, thus bearing slight indications of the approaching spring plumage.—William J. Chalk; The College School, Taunton.

Great Northern Diver in the Midland Counties.—In addition to the one mentioned by Sir Oswald Mosley (S. S. 1981), I have to record the occurrence of another great northern diver in the Midlands, shot in November last, on a pool on Mr. Ward's estate at Wombourne, by the gamekeeper. Curiously enough, as it rose to make its

escape it entangled itself in the line of a jack trimmer, and hanging tethered, as it were, in mid-air, of course presented an easy mark to the gun. This specimen has been preserved at Mr. Franklin's establishment at Birmingham.—*A. M. Browne.*

"*The Mummy Specimen of Alca impennis at Halifax, Nova Scotia.*"—Under the above heading (which to me does not seem very applicable) the last number of the 'Zoologist' (S. S. 1982) contains a note by Mr. J. Matthew Jones, in which he is pleased to term a statement published by Mr. Henry Reeks, on my authority, "incorrect." This statement is to be found not at page 1835 of the 'Zoologist,' as printed in Mr. Jones's note, but at page 1855, and consists of a remark written by me, which I gave Mr. Reeks permission to use. Though I kept no copy of it, I doubt not it has been accurately printed. I am somewhat surprised that a naturalist of Mr. Jones's sagacity and position should so positively and unceremoniously have denied the correctness of this statement, especially since the "explanation" he offers in no way disproves its truth. The facts of the case are simple. The Bishop of Newfoundland having, in the autumn of 1863, sent me the imperfect "mummy" of a great auk, which was exhibited by me to the Zoological Society on the 10th of November of that year (P. Z. S. 1863, pp. 435—438; Zool. 9122—9124), and subsequently furnished most of the material for Prof. Owen's paper in the Zoological 'Transactions,' I begged his Lordship to use his best endeavours to procure for me a second and more perfect one. In answer to that application he kindly wrote to me, under date of "St. John's, N. F., 18 May, 1864," telling me of various failures in the accomplishment of my wish, but holding out good hope of ultimate success. The envelope of this letter, which is now before me, bears, among other post-marks, that of "Cambridge, Ju. 7, '64," showing approximately the time of its arrival in England. I, however, had sailed for Spitsbergen on the 1st of June; consequently the letter did not reach me till my return from that country some months afterwards, and it was not until the 29th of October that I was able to answer it. On receipt of my answer the Bishop wrote to me again, and I must in self-defence quote an extract from his letter, dated "St. John's, N. F., 15 Dec., 1864." After expressing his regret at the unavoidable interruption in our correspondence, his Lordship says:—"However I have the satisfaction of knowing that you were informed of the safe arrival of your kind and interesting communications by Mr. Jones, to whom I forwarded your paper and the photograph of the mummy. In forwarding them, I requested him to thank you for them and make you acquainted with the second and more perfect specimen, which I had sent to him, and *which I should have sent to you, if I had received an earlier answer to my letter which you found on your return to England.*" I beg leave to call the attention of your readers to the sentence I have emphasized. They will doubtless be of opinion that the statement which Mr. Jones called "incorrect" was exactly the reverse, and I think that gentleman must admit this to be the case.—*Alfred Newton; Magdalene College, Cambridge, January 31, 1870.*

Common and Sandwich Terns at Spurn.—I am much obliged to Mr. Boyes for his note referring to my remarks (Zool. S. S. 1944) on the breeding of these terns at Spurn. Although never having taken the eggs of the common species at Spurn, I have always been under the impression that this, as well as the lesser species, bred there. My opinion was based on information received from our fishermen who visit the Point, and also from residents there, and was further strengthened by having myself seen during

the summer considerable numbers of this species, both old and young birds, along the coast and near the Point; some of the latter, indeed, not very strong on the wing, and still, judging from the clamour of the old birds, the subjects of parental solicitude. I have also had young birds of the year shot at Spurn. From these circumstances I am still inclined to think that the common tern, although, as Mr. Boyes says, not breeding with the colony of lesser tern, does nest somewhere in the vicinity, either along the Yorkshire coast or even on the opposite coast of Lincolnshire: for, if not, where do the old birds, seen during the spring and summer about the mouth of the Humber and at Spurn, accompanied later by their young, come from? I know of no breeding-place of *S. Hirundo* on the east coast to the north of Spurn, except that on the Farne Islands, and should scarcely think our Spurn birds belong to that colony. The fact of a few pairs of Sandwich tern nesting at Spurn was entirely derived from what fishermen resident there told me; and I think it quite possible I may, as Mr. Boyes says, have been misled as to their breeding. I concluded that the tern referred to belonged to this species from its being described as the largest of the three terns visiting Spurn, with an expanse of wing approaching that of the brown-headed gull.—*John Cordeaux; Great Cotes, Ulceby, February 4, 1870.*

Little Gulls in Leadenhall Market.—On going into Leadenhall Market to-day (February 16th) I saw no less than eight specimens of the little gull, and on my return homewards I saw three more that had been bought in the market just previous to my visit: eight of the birds were fine adult specimens, in fine winter plumage. It is not often one has the chance of seeing so many specimens of this bird in one day in this country.—*F. Bond.*

[I saw nine specimens of the little gull in Leadenhall Market on the 10th of February, and several bitterns. On one occasion lately I counted twenty-seven bitterns in the market: these were probably from Holland.—*Edward Newman.*]

Glaucous Gull at Weston-super-Mare.—A very fine specimen of the glaucous gull was shot here about New-year's Day: it is very nearly in adult plumage. Two more examples have since been obtained here; one caught in a gin near the town, the other shot on the Steep Holm.—*Murray A. Mathew; Weston-super-Mare, February 12, 1870.*

Correction of an Error.—By the kindness of Mr. Swaysland I had the pleasure to-day of examining the bird mentioned in the 'Zoologist' (S. S. 1984) by Mr. Bond, under the name of the snow finch (*Fringilla nivalis*). The specimen in question is certainly not of that species, but appears to me to belong to the *Alauda sibirica* of Gmelin, the *Alauda leucoptera* of Pallas, and in this opinion Mr. Alfred Newton, who was with me, concurs.—*George Dawson Rowley; Chichester House, Brighton, Jan. 1, 1870.*

[This is the note to which I referred (Zool. S. S. 2022). I thought it unnecessary to publish both this and Mr. Bond's correction of the same mistake, but a valued correspondent thinks otherwise, and I defer to his opinion.—*Edward Newman.*]

Richard's Pipit.—The rarity of the season consists of two specimens of this fine pipit, killed, as all others have been in Norfolk, in the neighbourhood of Yarmouth, and, strange to say, by the same individual (Serjeant Barnes, late of the Police Force) who has killed three previous specimens. The first, which proved to be a male, was shot on the 1st of December; the second, also a male, on the 14th: both are in perfect

plumage, but one is, I imagine, a somewhat older bird than the other, and agrees exactly with a Yarmouth specimen in the Norwich Museum, also killed in the winter. One of the hind claws in the bird obtained on the 1st of December, measured exactly one inch, and was so fine at the point that one cannot wonder that this claw should be so often found imperfect; and not only the length but the curvature of the claw varies much in different examples. I was unfortunately absent from home at the time, and missed the opportunity of examining these birds in the flesh, but my friend Mr. Southwell and Mr. Gunn together dissected the first, and took its measurements in the flesh, and Mr. Gunn did the same with the second bird; and the results of their examinations, which have been kindly placed at my disposal, are embodied in the following table, to which Mr. Gunn has added the measurements of a Richard's pipit killed at Yarmouth in 1866, taken by himself at that time, and also the comparative measurements of examples of the rock, tree and meadow pipits, and of two recently-killed shore larks.

	Richard's Pipit.			Rock Pipit.	Tree Pipit.	Mead. Pipit.	Shore Larks.	
	* G. 1866 ♀	T. S. 1869 ♂ No. 1.	G. 1869 ♂ No. 2.	♂ G.	G.	G.	T. S. 1870 ♀ No. 1.	T. S. 1870 ♀ No. 2.
	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.
Total length . . .	8½	8	8½	6½	6½	5½	7¼	7½
Extent of wings . .	12¼	12¾	12¾	—	—	—	12¼	12¾
Wing from flexure . .	3½	3¾	3¾	3½	3¾	3	4⅛	4¼
Bill along ridge . .	½	½	½	⅔	—	½	⅔	⅔
Tarsus	1¼	1⅜	1¼	1	1½	¾	¾	¾
Middle toe and claw	1¼	1⅜	1⅜	⅞	⅞	⅝	⅞	⅞
Hinder claw	⅞	1	¾	½	¾	½	⅞	⅞
Weight, in grains	—	440	—	—	—	—	626	600

Including the two specimens here recorded six have now been procured in Norfolk; the first on the 22nd of November, 1841; another in April, 1842; one in April, 1843; and one on the 28th of December, 1866; showing that the bird, though an accidental visitant to our coast, occurs both in spring and autumn, but whence it comes to us so late in the year is a difficult point to determine. It is perhaps worth noting that when the last specimen was killed here in December, 1866, several shore larks were procured about the same time; and such has again been the case this winter—a southern and a northern species thus meeting, as it were, on our eastern coast. The great difference in size of examples of this pipit is also remarkable. Yarrell gives the whole length of a male as 7¾ inches, whilst Mr. Fisher, in the 'Zoologist' (Zool. 181), gives the length of two of the earlier Norfolk birds as 7¼ inches and 7⅝ inches respectively, the three last varying from 8 inches to 8¼ inches.—Henry Stevenson.

The Pipit shot at Bridlington.—At my request Mr. Boynton most obligingly forwarded me the little pipit shot by him at Bridlington. I am not surprised that my friend Dr. Bree should have felt puzzled to identify the bird, for it is certainly in a most abnormal state of plumage. Being almost as familiar with *Anthus ludovicianus*

* G. measurements taken by Gunn; T. S. those taken by Thomas Southwell.

as with our own common *A. pratensis*, I saw immediately that the bird was not an American species, and that for the following reasons:—

1. The bird was altogether larger, being 0.50 *longer* than the largest specimen of *A. ludovicianus* I have ever seen; but some of this may be owing to want of exactness in setting up.

2. It stood higher on its legs, from the fact of being 0.10 longer in the tarsi than the largest specimens in the Smithsonian Institution, or any examined by myself.

3. The bill, feet and legs differed entirely from those of *Anthus ludovicianus* in colour. The tail, and almost entirely unspotted breast, distinguished it again from the American bird.

The claw of the hind toe evidently deceived Dr. Bree; but I can assure that learned author that too much reliance should not be placed on this part. Dr. Bree will see the force of this remark if he compares a quantity of skins of *A. pratensis*. I have by me while writing two of the latter species in the flesh: one has the claw the same length as the hind toe; the other 0.12 longer. Professor Baird would seem to have noticed this discrepancy in the American species, as he does not even allude to the hind toe or its claw in the various measurements given by him in 'Birds of North America.' Although, on examination, I soon saw that Mr. Boynton's bird was not *A. ludovicianus* I could not, for want of a better knowledge of European species, be certain to which species it really did belong, but certainly thought it should be *A. rufescens*. However, to settle this point, I sent the specimen to Mr. Gould, who writes me that "The bird you have submitted to my inspection is unquestionably the tawny pipit in abraded and dirty plumage." It is figured in part 9 of Mr. Gould's magnificent work on the 'Birds of Great Britain,' under the name of *Anthus campestris*, with *Anthus rufescens* as part of its synonymy. — *Henry Reeks; Thruxton, February 18, 1869.*

Curious Anecdote of a Heron.—Mr. T. H. Edwards, when shooting by the river at Keswick, near Norwich, on the 7th of December, 1869, mortally wounded a water-hen, which fell close to a heron that was standing by a drain in an adjoining meadow. The heron instantly rushed at the water-hen, and first striking it with its beak, seized and carried it off to another field, where it was seen to place its feet on the bird and endeavour to tear it to pieces with its bill. In order to scare it from its prey, Mr. Edwards approached as near as he could and fired off his gun, when the heron again seized the carcass, and this time flew off with it to a considerable distance, so that further observation was impossible. In the act of flying with the water-hen in its bill, the heron had a most unnatural appearance, the neck seemed too weak to support such a weight, and was consequently directed forwards, and downwards, instead of being thrown back as usual between the shoulders. The weather up to that time had been mild and open, so that extreme hunger could scarcely account for this unusual proceeding.—*Henry Stevenson; Norwich, February 15, 1870.*

Winter Visitants in West Cornwall.—The late severe frost has given us a fair influx of various species of birds otherwise of not frequent occurrence. We have had scaup, tufted ducks, goldeneyes, sheldrakes, pochards, besides wild duck, wigeon and teal. The only wild geese that have made their appearance were some brent geese, but I have not heard of the other wild geese, as the bean and white-fronted, nor any wild swans. I observed yesterday at Mr. Vingoe's a very fine adult-plumaged red-

breasted merganser, and also a very perfect winter-plumaged gray phalarope. It may be remarked that the goldeneyes that appear in the far west after and during severe weather are in the proportion of forty out of fifty in the female plumage, or perhaps in the plumage of the first year of each sex. I observed one this week in perfectly adult plumage. I have not seen any shovellers or pintails. A male merlin, in that beautiful state of plumage known as the "stone falcon," was killed on the ground of the Hon. and Rev. Stephen Lawley, at Trevalyn, near Penzance, this week.—*Edward Hearle Rodd ; Penzance, February 19, 1870.*

Slavonian Grebes, Rednecked Grebe and Goosander on the Taw.—During the severe weather from the 10th to the 17th of February, the following birds shot on the Taw by one of the river pilots were brought to the birdstuffer at Barnstaple; three Slavonian grebes, one rednecked grebe and one goosander.—*Murray A. Mathew ; Weston-super-Mare, February 21, 1870.*

Weight of Snipe.—Having seen in the 'Field' lately a great many accounts of the weight of snipe, I may mention that I have frequently found three snipe to weigh down a pound (sixteen ounces), and out of one day's bag I have found at times two or three sets of three snipe to do this.—'Field' *January 22, 1870.*

Hooper at St. Asaph, North Wales.—A fine specimen of the hooper or whistling swan was shot on Thursday last, 30th of December, on the waters of the river Clwyd, by Robert Ll. Jones, of St. Asaph. It measured from head to tail four feet ten inches, in the expanse of wings seven feet four inches, and weighed fifteen pounds.—*Id.*

PROCEEDINGS OF THE ENTOMOLOGICAL SOCIETY.

February 7, 1870.—ALFRED R. WALLACE, Esq., F.Z.S., &c., President, in the chair.

Mr. Wallace expressed his thanks to the Society for electing him to succeed Mr. Bates in the office of President; and nominated as his Vice-Presidents for the year, Mr. Bates, Major Parry and Mr. Pascoe.

Additions to the Library.

The following donations were announced, and thanks voted to the donors:—'Horæ Societatis Entomologicæ Rossicæ,' vols. iii.—vi.; presented by the Society. 'Bullettino della Società Entomologica Italiana,' vol. i., part 4; by the Society. 'Journal of the Linnean Society,' Zoology, No. 47; by the Society. 'Journal of the Quekett Microscopical Club,' No. 9; by the Club. Hewitson's 'Exotic Butterflies,' No. 73; by W. W. Saunders, Esq. Newman's 'Entomologist,' vol. iv.; by the Editor. 'La Phylloxera et la nouvelle maladie de la Vigne,' by J. E. Planchon and J. Lichtenstein; by the Authors.

By purchase:—'The Record of Zoological Literature,' 1868 (the entomological part); Gemminger and Harold, 'Catalogue Coleopterorum,' vol. vi.

Prize Essays.

It was announced that the Council offered two Prizes of the value of Five Guineas each to the Authors (whether Members of the Society, or not) of Essays, of sufficient merit and drawn up from personal observation, on the Anatomy or Economy of any insect or group of insects. The Essays must be sent to the Secretary, at 12, Bedford Row, indorsed with mottoes, on or before the 30th of November, 1870, when they will be referred to a Committee to decide upon their merits: each must be accompanied by a sealed letter indorsed with the motto adopted by its author, and inclosing his name and address. The Prize Essays shall become the property of, and will be published by, the Society.

Exhibitions, &c.

Mr. Bond exhibited four specimens of *Satyrus Semele*, in each of which the marking and coloration of the wings were partly of the male and partly of the female character.

Prof. Westwood exhibited two females of *Anthocharis Cardamines*, each of which had a dash of the orange-colour of the male on one of its fore wings; also a female of *Polyommatus Adonis*, the left fore wing of which was dashed with blue like the male; also a male of *Siderone Isidora*, one side of which was partially coloured like the female.

The President suggested that the existence of specimens of this kind might be explained on Mr. Darwin's theory of sexual differences. The hypothesis was that the sexes of a species, though now differently coloured, were once alike; the divergence from the original type was sometimes in one sex, and in one direction only; at other times in both sexes, and in opposite directions; and it might be that these curious cases of the union of opposite sexual colours were only instances of a partial reversion, or modifications of reversion, to the original ancestral type.

Mr. Bond, on behalf of Dr. Wallace, exhibited cocoons from various parts of the world of *Bombyx Yama-mai* and *Antheræa Pernii*.

Mr. Stainton exhibited a large box-full of Micro-Lepidoptera, each specimen being separately labelled in the manner commended by Mr. Bates in his Anniversary Address, so as to show the locality and date of capture. This led to a lengthy conversation on the utility of labelling captures, the minutiae which it was necessary or desirable to record, and the readiest mode of doing it; in which conversation the President, Prof. Westwood, Mr. Pascoe, Mr. Fry, Mr. Janson and others took part.

Prof. Westwood exhibited a Hymenopterous insect, belonging to the family Cynipidæ, remarkable for its globose head and long neck, the neck not being simple, but possessing on each side a membranaceous wing or dilatation, emarginate and deflexed; the basal joint of the antennæ, and the femora and tibiæ also had membranaceous dilatations. The specimen was brought to this country by the President, and was captured in the Sulu Islands.

Mr. Janson, on behalf of Mr. G. R. Crotch, exhibited *Philonthus cicatricosus* (*Erichson*), a species new to this country; and *Dyschirius angustatus*, *Hydroporus unistriatus*, and *H. minutissimus*, all recently added to the British list. The three first-named were captured by Mr. Moncreaff at Portsea; *Hydroporus unistriatus* had also been taken by Mr. Crotch at Merton, Norfolk; and *Hydroporus minutissimus* was taken by Mr. Wollaston at Slapton Ley.

Major Parry exhibited a North American beetle of somewhat doubtful affinities, the *Ochodæus obscurus* of Leconte (*Journ. Ac. Philad.* 1848, p. 86), which name was afterwards changed by the author to *Nicazus obscurus* (*Classif. Coleop. N. Amer.* 1861, p. 130). On his recent visit to this country, Dr. Leconte presented Major Parry with a specimen of this insect, intimating that he was not satisfied as to the position he had assigned to *Nicazus*, namely among the Scarabæoidea, between *Acanthocerus* and *Trox*, and suggesting that it might possibly be better placed among the Lucanoidea. The specimen has been carefully examined by Major Parry and Mr. Charles Waterhouse, but as regarded the principal character of the antennæ of the Lucanoidea, the immovability of the leaflets of the clava, it was found that in *Nicazus* the leaflets were slightly moveable: in this respect, however, Mr. Waterhouse found it to agree with some Australian species of *Ceratognathus*, and in examining the mouth he could not detect anything by which it could be separated from the Lucanoidea, whilst the penicillate maxillæ were alone sufficient to separate it from the Trogidæ.

The Secretary read the following extract from a letter from Mr. Roland Trimen, dated Cape Town, December 2, 1869, respecting the habits of some species of Paussidæ:—

“I have found a specimen of *Paussus Burmeisteri*, *Westw.*, in a singular situation. Descending the Lion’s Head mountain, close to the town, I observed a small beetle resting at the extremity of a leaf of the common sugar-bush (*Protea mellifera*), and a slight motion of its antennæ at once discovered it to be a *Paussus*. It seemed to be basking in the full sunshine; the hour being about 1.30 P. M. On attempting to take it with my fingers, the beetle instantly dropped on the ground; and I had to search for some minutes before I discovered it among the *débris* beneath the bush. The plant of *P. mellifera* was a low one, with several fully-opened flowers. Another of the Paussidæ, the *Pentaplatarthrus paussoides* of Westwood, I have met with lately not unfrequently, and a good many specimens have also been taken by Mr. Alfred C. Harrison, who discovered the first example known to me as inhabiting this neighbourhood. This beetle lives in the nests of a moderate-sized black ant, under stones, and is usually conspicuous from its superior stature and shining reddish brown colouring. Those that I have seen were either motionless or walking slowly among the excited ants along one of the galleries; and I could not see that the ants, when disturbed by the removal of the stone roof of their

nest, showed any anxiety about the safety of the beetles, or indeed paid them any notice whatever. Dr. Herman Becker, however, has told me that he believes he saw some ants *milk* a specimen in the same manner as they treat the Aphides. Mr. Harrison brought me a pair taken *in copulâ* in the nest; an interesting circumstance which leads me to think that the beetles seldom, if ever, leave the formicarium. Another very much smaller species, a true Paussus, which I have not yet determined, was found by the gentleman last named in a nest of small reddish ants. I hope to have further opportunities of observing the ways of the Paussidæ."

Prof. Westwood observed that the sexual differences of the Paussidæ had not been recorded; and any information on this point would be very welcome.

Papers read.

The following papers were read:—"A Revised Catalogue of the Lucanoid Coleoptera; with Remarks on the Nomenclature, and Descriptions of New Species" (conclusion); by Major Parry.

"On the Species of Charaxes described in the 'Reise der Novara'; with Descriptions of two New Species"; by Mr. A. G. Butler.

Catalogue of the Neuroptera of the British Isles.

Mr. M'Lachlan presented the MS. of "A Catalogue of the Neuroptera of the British Isles," the first instalment of the proposed Catalogue of indigenous insects; and on so doing, he remarked that the term Neuroptera had been taken in the Linnean sense, as including the three sub-orders or groups known as Pseudo-Neuroptera, Neuroptera-Planipennia and Trichoptera. Of the Pseudo-Neuroptera, the Catalogue of the family Psocidæ was in accordance with Mr. M'Lachlan's own Monograph of the British species, published in 1867 in the third volume of the 'Entomologist's Monthly Magazine,' the synonymy after his own investigations; the Perlidæ had not been very recently revised, and were in an unsatisfactory state, but the Catalogue had been worked out from an examination of such materials as were accessible to the compiler; the family Ephemeridæ had been entirely furnished by the Rev. A. E. Eaton; and the Odonata, including six families, the Libellulidæ, Corduliidæ, Gomphidæ, Æschnidæ, Calopterygidæ and Agrionidæ, had been compiled from the works of De Selys Longchamps and Hagen, adopting, however, almost in its entirety, the division of the old genus Libellula originally proposed by Newman. The Planipennia and Trichoptera were catalogued in accordance with Mr. M'Lachlan's Monographs of the British Species published in the Transactions of this Society, the Planipennia in the Transactions for 1868, and the Trichoptera in 1865 in the fifth volume of the third series, with such additions and corrections in each case as subsequent investigations had rendered necessary.—

J. W. D.

Bird-haunts of the Outer Hebrides.

By THEODORE C. WALKER, Esq.

THE Outer Hebrides or "Long Island," as every one knows, is that group of islands to the west of Skye, extending from the Butt of Lewis to Barra Head. This land, barren, rugged, stormy, ever weeping with the rain from the Atlantic, is nevertheless extremely interesting to the ornithologist, on account of the great diversity of feature: On the west extensive sands and "machirs," or low sand-hills,—in the interior wild and rugged hills, lonely island-dotted lakes and marshes,—on the east extensive lochs of deep water, while the islands to the south of Barra have precipices of great height,—forming one of the most celebrated breeding-places for the rock birds in Britain.

Having for three seasons past "roughed it" in the southern parts of these islands, an account of their avifauna may not prove uninteresting to the readers of the 'Zoologist.' It will be my endeavour, in place of giving a dry list of birds, to carry the reader in thought to the scenes themselves; to try, in word-pictures, to show him glimpses of bird-life in that stormy land. Nature and her spirits, the free birds of the air, have ever been my favourite study; to use the telescope instead of the fowling-piece, and, feasting one's eyes on the loved scenes, to trace the hand of their Maker in their forms and habits.

I crave the kind indulgence of the reader if I take up too much space in describing thoughts and scenes, the remembrance of which are so photographed on one's memory that as I write I am in thought again among the wild hills and lonely shores of the land of my fathers.

"My heart is true, my heart is highland,
And in my dreams behold the Hebrides."

On the morning of the 8th of June, having had a comfortable breakfast, my brother and I embarked on board the boat which takes the mails to Barra Head lighthouse. The picturesque bay is animated by the bustle and excitement of the herring season. The herring fishery in the Outer Hebrides commences on the 1st of May, the herring generally appearing in the north of Lewis, and gradually working down the Minch. During May and June every loch and bay of importance, which in winter is barren, desolate, terrible in its solitude, is animated with the herring fishery: the boats come chiefly from the north-east coast, Wick, Inverness, Banff, and many places,

the sailors building wooden shantees or turf huts, while salting-pans, barrels and casks lie on the beach.

The noble bay, with the picturesque ruins of Kisimul Castle,—the castle of the famous McNeils of Barra,—the herring-boats, brigs and steamers, with the barren archipelago of islands, form a lovely scene—lovely in spite of the raw, chill air, gray and lowering sky, with a subdued and pensive tone, as if Nature were mourning the barrenness of these islands. Not a shrub, not a bush is seen; bare, bleak rock cropping out of scanty grass mottled with stunted heather; naked black rocks peeping up above the seething waves; a sail here and there; and far, far across the Minch, dim as vanished hopes, Skye with its splintered peaks and Rum with its cloud-capped hills.

Casting off from the fish-tainted jetty, we skim past the castle, which is degraded into a fish-curing station, round which quantities of gulls are hovering: the kittiwake is by far the most plentiful; it here takes the place of the common gull, which further north is found in every bay and ford. The herring gull lazily sails overhead, while the lesser blackback is floating a little way off, more wary than the lonely kittiwake, which is hovering round within arm's length, picking up refuse of herring.

The wind is dead a-head, and we shall have a rough passage, for we shall have to take the Atlantic side of the island. At the entrance of the bay we see a small rock completely covered with kittiwakes, sitting gorged after their unclean feast: they mostly roost here at night, not going to the ledges of Barra Head, as these are mostly barren: as we skim past them we observe that several are in various stages of plumage, but the larger portion are in adult plumage.

Slowly beating up the Sound of Vatersay we emerge into the dread Atlantic, on whose huge billows our tiny boat is tossed and tortured. We pass within a stone's throw of Flodday and Lingay, small rocky islets for pasturing sheep: great numbers of arctic terns (*Sterna arctica*) are dancing and flickering over the dull sullen waves, having just arrived at these their breeding stations. Slowly forging past the island of Palla, we sail close to the land, almost on the top of the gigantic billows, which with terrific force dash against the black precipices, thundering into the huge caverns with sullen roar—caverns gloomy, rent, terrible as the mouth of Hades: rock pigeons in numbers dash out, flitting with swift flight along the black rock and over the top of the cliffs.

But see those white patches defiling the black cliff: they are the

roosting-places of the shag (*Carbo cristatus*), not so much used in the breeding season, but still frequented by bachelor or barren birds: their nests are in the caverns, and are similar to that patch of yellow wrack in that crevice on which a shag is sitting: the "scarts," as they call the shags, wriggle their heads at us in an uncouth manner, then while some plunge into the seething waves, diving solid as a stone, others fly, with outstretched neck and slowly flapping wings, close over the rolling gloomy waves.

A few puffins are breeding on the banks of turf where the cliffs are not so steep, and in the surging waters the demure little puffins are diving, getting up close under us with evident astonishment. Looking over the boat-side, I can see the puffins flying under the water, using their wings as in the air; their webbed feet seem used for steering—it seems even to use its feet for that purpose when flying, as they are stretched out as far apart as possible, and it even sometimes "kicks out" with them when flying: these are the male birds, the females are mostly sitting in their burrows.

The gloom is thickening: a thin mist is slowly creeping up from the horizon, obscuring and blotting out the islands, like unholy thoughts across the mind, blotting out sweeter visions. Bernera, with its lighthouse on the lofty cliffs of Barra Head, is obscured; the fearful form of Ram Head on Mingalay looms dim and weird through the gathering gloom. Out of the gloom the snow-white gannet skims, whose home is lonely St. Kilda: rising in the air, with the gentlest yet powerful flaps of its black-tipped wings, gracefully swooping down to the tip of the black-green wave, gliding along the trough, lost to our sight as the mountain waves tower over us, up with the speed of thought, without one flap of those beautiful untiring wings, the gannet impresses one with the idea of strength, and lightness, and untiring vigilance: it seems, like the spirit of departed, doomed to haunt the troubled sea. Observe how slowly the gannet flaps its wings, not dipping them down so low as the gulls or herons; the least touch seems to propel the powerful bird and send it skimming along the trough of the wave, then, as it mounts to the top of the wave, altering the angle of its wing, the wind catches it, and light as a feather it is borne aloft, to skim down again untiringly, unceasingly. The gannets are on the look out for the shoals of herring, but as I did not see one of the many skimming the water make a plunge, I presume the shoal was not near the surface. But see that pirate-bird, with sooty back, freckled white breast and streaming tail, swiftly dash out of the

gathering gloom and swoop at that gannet! the gannet swerves aside; the pirate almost touches the water, but springing aloft again dashes at the gannet, which again swerves, while the skua sheers off, doubtless seeing that the solan was empty and hungry as itself. I have only once before seen Richardson's skua attack such a large bird as the gannet.

But we have passed Pabba's precipices and are in the Sound of Mingalay, where the billows of the Atlantic, meeting the waves and tide of the Minch, the tide running like a mill-race, the huge waves are humbled, and in rage and despair are leaping, foaming, tumbling and whirling us close under a reef of rocks, on which the waves churn themselves into foam—mad, like a wounded boar. Two pair of great blackbacks rise from their nests, and, conscious of their security, stare at us as our boat is labouring and plunging. Several oystercatchers are running about the rock, and rising and quivering their wings, trilling their shrill whistle in terror for their eggs, while the "scarts" fly blindly around the reef.

Ram Head, hideous in the gloom, is blotted out by the fierce rage of the storm. A yell in Gaelic as Rory and his man spring to the sheet! I grasp the tiller as they tear down the sail: the wind rages and screams round us; the angry waves, seething in the maelstrom of tumult, are white with foam, as the fierce gale strips off their tops, blending salt water and rain, and mist, and sea, and sky, all in gloom. The foam is dashed in our faces, as, encased in waterproofs from head to feet, I clench my teeth and grasp the tiller. All is gloom, one can't see fifty yards a-head; the reef of rocks on which we can hear the roar of the waves, is hidden from sight, and nothing is seen, save when a gull seems to whirl past and vanishes in the gloom.

Rory says it is impossible to reach Barra Head to-day, as wind and tide are against us, and as we have manfully battled with wind and tide for six long cold hours, we are unwilling to turn back. Rory says he can land us on Mingalay: there are two men there who can speak English, and we can get shelter, and cross over the Sound of Bernera to Barra Head to-morrow if the weather moderates: we clutch at this forlorn hope, and

"Swift as a gull before the breeze,
Before the gale bound we."

A quarter of an hour's cold wet sail, with the salt foam in our faces—an indistinct black mass rises, seemingly pressed down by the weight

of clouds: it is the beetling cliffs of Mingalay, with the low clouds careering along their sides, hiding their tops. A white gleam of sand in a sheltered nook, on which the ground-swell is heavily breaking, a few battered boats drawn up, a black amphitheatre of hills, and we catch a dim outline of a group of huts as we sail past. Into a sheltered cove Rory glides, and as the boat is lifted on the wave we spring out, catching and dragging out our gun-cases and *impedimenta*. A parting cheer to Rory, as his boat is lost in the gloom, and here are we on a barren island, on which no strangers have landed for more than a year.

Wet and giddy we stagger along the track to the huts, and getting the schoolmaster as interpreter, we are soon lodged in the chief hut of the "clachan." Behold us then in a highland hut; a loop-hole as large as the crown of one's glengarry for a window; a peat fire on the earth floor, filling the hut with blue eye-smarting "reek," through the gloom of which one sees the grandfather and grandmother crooning over the fire, two calves whose eyes shine like emeralds, a fat young grunter and sundry fowls, two cats and a dog. Seated round a steaming dish of haddock, with sea-oat cake and sour milk, what care two healthy fellows roughing it, though storm may rage! our sleep on bed of straw and heather will be sweet—sweet as he only knows who loves Nature in all her moods; following her spirits, the free birds of the air, loving her in mist and sunshine, in calm and storm; seeing her soul almost human in her passion, almost divine in her tenderness; her creatures leading the mind up to her creatures' God, purifying and elevating the soul, and her breath giving new life and energy to the body.

THEODORE C. WALKER.

Ornithological Notes from North Lincolnshire.

By JOHN CORDEAUX, Esq.

(Continued from Zool. S. S. 2055).

FEBRUARY, 1870.

THE month on our eastern coast has been unusually severe, a succession of gales, frosts and snow-storms, for which we have to go back to the severe winter of 1861-2 for a parallel. On the 6th, 7th and 8th we experienced some severe weather and heavy gales, and on these days at Wick, on the east coast of Caithness, the waves, for

three days and nights, swept every seven or ten minutes in a solid mass of green water as high as twenty-five to thirty feet above the parapet of the new pier. The 12th, 13th and 14th were the roughest days I ever recollect in our Lincolnshire marshes: there was a heavy and continuous gale from the east, intense frosts, and frequent snow-storms, during which it was next to impossible to make head against the blast; and in the intervals between the squalls the air was filled with minute particles of frozen snow drifting in dense clouds, and cutting the skin like needle-points, while with every increased gust huge columns of this fine snow-dust were whirled aloft and went careering across the bleak plains, like the sand-columns of the desert, or the fabled genii of an eastern tale. On the night of the 21st there was an extraordinary high and destructive tide, doing more in one night than the accumulated efforts of ten years, to injure and encroach upon the coasts of Yorkshire and Lincolnshire. Fortunately it was a neap tide, otherwise the damage would have been fearful. This severe weather drove many large flocks of wild-fowl into the Humber, including swan, brent geese, scoters, scaup and tufted ducks, shiel-drake, wigeon, divers, gulls, &c.

Goldeneye.—February 10. One of my men gave me a fine old male goldeneye, taken at daylight this morning on our main drain. The drain was frozen through nearly to the bottom and the water running over the ice surface: this ice prevented the duck from diving, and, as the man said, it was in no hurry to take wing, giving him time to knock it over with a clod. A female of this species shot on one of the open drains in the marsh on the 12th, had in the stomach a few shells of *Physa fontinalis*, and a mass, apparently, of vegetable matter: on dissolving this, however, in water, and carefully examining the fragments under the microscope, I found it consisted almost entirely of the remains of water-larvæ of some Neuropterous insects, the small portions of vegetable fibre having probably been swallowed with them. I am unable to give the species of insect these belong to, but the outer coat in some is peculiarly barred and streaked with dark stripes. This agrees with what Macgillivray says of this duck, that their food consists principally of the larvæ of water insects. The goldeneye is not common on this coast, very rarely falling to our gunners, and I seldom see them in the local game-shops.

Wood Pigeon.—February 10. Returning home this evening down the "beck," from looking after the wild ducks, I stood for a short time at the corner of a plantation where the wood pigeons usually

roost, and in a few minutes shot four as they came in: each had its crop crammed exclusively with fragments of cabbage-leaves, one alone containing as much as would fill an ordinary breakfast-cup. Wood pigeons prefer the leaf of this plant to almost any other green food, and if undisturbed will soon make terrible havoc in a cabbage plot.

Fieldfares and Larks feeding on the Swede Turnip.—February 11. I have observed lately many freshly drilled holes, an inch deep and about half an inch in width, in the swedes, and much fresh pulp scattered round the bulbs. The only birds frequenting the field were fieldfares and larks, and I hardly suspected these capable of doing the mischief, although the small foot-marks in the snow around the bulbs certainly looked suspicious. This morning, however, I shot a fieldfare in the very act of digging a hole into a root, and on opening him found his stomach full of the pulp of the turnip. The stomachs of three larks, opened at the same time, contained nothing but small green fragments of the swede-leaf and many minute stones.

Snipe.—February 11. I shot a one-legged snipe this morning, that is, having only one available leg, the other (tarsus and foot) being doubled forward along the tibia and firmly fixed there, reminding one of the constrained and induced attitude of a Hindoo fakir. The toes were slightly tumid, and two claws were wanting. This bird was in good condition.

Wigeon.—The males are now (February 12th) in full plumage.

Snow-flake.—February 15. The severe weather on the 12th and following days quite cleared the marshes of birds, driving them into the stack and fold-yards; even ducks and snipe gave it up as a bad job when the drains became full of drifted snow. The only small birds that “kept the open” were the little snow buntings, who rather, judging from their sweet cheery notes, seemed to enjoy the weather. Two or three of these little fellows, shot for examination, had their stomachs (the inner coat or cuticle of which is very tough, almost like thin horn) filled with various grass-seeds: they are always very fat. I lately saw a flock containing many hundreds on some oat-stubbles near the Humber bank, and, as they now are assuming the adult dress, the dark and light markings in the plumage contrast much more than in the autumn flocks. When hundreds are thus on the wing together, with a background of black, heavy, snow-laden clouds, it is a most striking and pretty sight, and one which forcibly suggests the beauty and appropriateness of the name.

Goosander.—February 15. An immature male, measuring twenty-six inches and a half over all, was brought me this evening by one of our gunners, who shot it near the Humber embankment coming over from the land. It is the fourth of this species I have come across in this district in fifteen years; one of these was an adult male shot at Cleethorpes in the winter of 1866. Some years since, in the winter, when walking down this beck at dusk two goosanders rose from a deep hole at a sharp bend in the stream, and I was lucky enough to get the male, a magnificent adult. He fell winged, and when I lifted him disgorged two trout, which, judging from their freshness, could only have been just swallowed: the larger of these was seven, the other about five inches long.

Shieldrake.—February 17. Has been more than usually plentiful on the Humber during the winter: I have seen eight in one day shot on the coast. The muscular coat of the stomach in this species is very thick and strong, and apparently capable of reducing any tough morsel. One opened to-day contains sand, and about a hundred small shells of the genus *Buccinum*.

Blackthroated Diver.—An adult female was shot on the Humber on the 16th. I had an opportunity of examining this bird, which belongs to a friend. As I know many of the readers of the 'Zoologist' are interested in the plumage of the divers, I copy from my note-book the description of the plumage of this bird, which was a very fine specimen, and partly assuming the summer plumage.

Colymbus arcticus (Linn.)—Adult Female.

Total length over all	- - - - -	30 inches.
Bill along ridge	- - - - -	2 $\frac{2}{3}$ "
„ gape to tip	- - - - -	4 "
Depth at nostrils	- - - - -	$\frac{3}{4}$ inch.
Width below nostrils	- - - - -	$\frac{1}{2}$ "
Wing from flexure	- - - - -	13 inches.
Tarsus	- - - - -	3 $\frac{1}{4}$ "

Iris red-currant colour. Bill grayish blue, gradually becoming darker towards the tip, ridge of upper mandible nearly black. Feet and tarsi dark olive-brown outside, pale flesh inside. Head and upper neck mouse-colour; forehead, sides and nape much darker. Upper plumage, scapulars and wing-coverts black, glossed with green. A row of feathers on each side of upper back tipped with white, forming two diverging lines. Scapulars broadly tipped with white, with the shafts of feathers black. The feathers of the greater and lesser wing-

coverts have a white spot on each side of shaft near the tip. Sides of lower neck gray, streaked with white. Tail black, some of the feathers narrowly tipped with white. Primaries—outer webs black, edged and tipped with smoke-gray; inner webs brownish black, shading gradually towards the edge (and more distinctly in those nearest the secondary quills) into marbled brown and white. Secondaries brownish black, with the greater portion of the upper inner webs white. Under wing-coverts and axillaries white, the latter in the feathers nearest the body with a brown shaft. Chin, cheeks, and all under parts, white, excepting a dark line under wings running along body. There is a great irregular V-shaped mark on the throat, formed by tips of feathers, which are black. A dark streak half an inch in width extends on each side of neck between gray of upper and white of under parts. This is streaked with white at both extremities, but not in the central portion.

Brent Goose.—This is the only species of goose that I have heard of as shot on the Humber in February. All the larger species appear to have been driven away by the severe weather. I got a fine female Brent this morning, one of two shot on the coast.

Little Gull.—Several of this small and elegant species have been shot on the Yorkshire coast during the month. Mr. Richardson, of Beverley, in a letter dated February 18th, remarks, "I have received thirteen little gulls shot on the Bridlington coast during the last fortnight, seven adults and six immature." And in a more recent communication, "There have been twenty-nine little gulls shot in all, nineteen old and ten young birds."

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,
February 7, 1870.

Erratum.—"Ornithological Notes from North Lincolushire" (Zool. S. S. 2053), line 7, for heard read observed.

Extracts from a Memoir intituled 'A Monograph of the Alcidæ.'

By ELLIOTT COUES, A.M., M.D.

(Continued from Zool. S. S. 2016).

2. Subfamily PHALERIDINÆ.—Genus FRATERCULA, *Brisson*.

Bill rather longer than the head, or than the middle toe and claw, nearly as high at the base as long, exceedingly compressed, the sides

nearly vertical, the base of the upper mandible with an elevated horny ridge, entirely surrounding it; the basal moiety of the upper mandible with its sides perfectly smooth, forming an elongated oblique triangle with two curved sides; terminal moiety with three or four deep very oblique curved grooves, from commissure to culmen, their convexity looking forwards. Under mandible without a basal ridge, the basal moiety smooth, the terminal with grooves, in continuation of those of the upper mandible. Culmen commencing on a level with the forehead, thence regularly declinate, very convex, with unbroken curve, its ridge sharp, the tip acutely pointed, overhanging. Rictus perfectly straight, except at the end; the angle of the mouth occupied by a circular callosity of membranous tissue; gonys ascending, slightly sinuate, the keel sharp, terminating posteriorly in a thin, elongated, almost hamular process. Nostrils placed just over the commissure, linear, long, reaching nearly across the base of the smooth triangular space of the upper mandible. No nasal fossæ; both eyelids furnished with prominent callosities, in one species developing into a slender acute process. No crest; a peculiar furrow in the plumage behind the eyes, as in *Lomvia*. Wings of ordinary length and shape. Tail contained two and three-fifths times in the wing; the lateral feathers slightly graduated, the central pair shorter than the next ones. Tarsus very short, only equal to the inner toe without its claw; stout, scarcely compressed, covered with minute reticulations, except for a short space in front, which is scutellate. Outer toe about equal to the middle; its claw shorter than that of the middle; middle claw much dilated on the inner edge; middle and outer claws slightly curved, not very acute, upright; inner claw very large, greatly curved, forming a semicircle, exceedingly acute, usually lying *horizontal*, not upright.*

* The peculiar position, no less than unusual shape of the inner claw of this genus is a strongly-marked character, not found in any other except *Lunda*. The great curvature and extreme sharpness of the claw could not be maintained were it vertically placed like the other claws, as it would be worn down by constant impaction against the rocks which the birds habitually alight upon. But in the usual attitudes and movements of the birds it lies perfectly flat on its side, and is so preserved intact. The birds make great use of this claw in digging their burrows or in fighting; and the preservation of the instrument for these purposes is evidently the ulterior design of the peculiar direction of its axis. The birds have the power of bringing it, on occasion for use, into a vertical position. These facts, mayhap, are not generally known. See Pr. A. N. S., Phila., 1861, p. 254.

A very peculiar, though well-known genus of Alcidæ, without an intimate ally except *Lunda*. The essential characters lie in the structure and configuration of the bill, the rictal and palpebral appendages, and the shape and position of the inner claw; although there are other features involved. *Lunda* is crested, with no furrow in the plumage, no palpebral appendages, and a very differently shaped bill.

Three distinct species represent the genus, as far as known. They are all peculiarly boreal birds, not coming far south, even in winter. One is extremely abundant on the shores of the North Atlantic; another inhabits the North Pacific exclusively; another is more particularly a denizen of the Arctic Ocean at large. They may readily be distinguished as follows:—

Species (3).

- I. A slender acute upright horn on the upper eyelid. Black of throat extending to bill. 1. *corniculata*.
- II. A short blunt process on the upper eyelid. A black ring around the neck, not extending to bill.
- Bill moderate; chord of culmen 2·00, the curve 2·10, the ordinate 30; depth at base 1·40 (average), wing 6·50. 2. *arctica*.
- Bill large; chord of culmen 2·40, the curve 2·60, the ordinate 45; depth at base 1·70 (average) wing 7·25. 3. *glucialis*.

Fratercula arctica (L.), Steph.—Habitat: Coasts and Islands of the North Atlantic, very abundant. Rare in the North Pacific (Pallas), where replaced by *F. corniculata*. In winter, south on the American Coast to Massachusetts. Breeds on the islands in the Bay of Fundy, (Boardman). Numerous specimens in all American Museums.

Adult (breeding plumage): Iris hazel brown. Eyelids vermilion-red, the fleshy callosities bluish ash. Base of bill and first ridge dull yellowish, the smooth contained space bluish, rest of bill vermilion-red, the tip of the lower mandible and the two terminal grooves yellowish. Legs and feet coral-red, claws black. Crown of head grayish black, the edges of which are sharply defined against the colour of the sides of the head, chin and throat, and the posterior edge of which is separated by a very narrow but distinct transnuchal stripe of ashy from the colour of the back. Sides of head, with chin and throat ashy white; nearly white between the eyes and bill, and with a maxillary stripe or area of blackish ash on either side of the throat. A narrow, distinct line of white along the anterior edge of the

antibrachium. Entire upper parts glossy black, with a bluish lustre, continuous with a broad collar of the same around the sides and front of the neck. Under parts from the neck pure white, the elongated feathers of the flanks and sides blackish. Under surface of wings pearly ash-gray; inner webs of primaries and secondaries dull gray-brown, the shafts brown, blackish at tip and whitish towards the base.

Length 13·50, extent 24·00, wing 6·50, tail about 2·25; tarsus 1·00; middle toe 1·40, its claw, ·40; outer toe 1·40, its claw ·30; inner toe 1·00, its claw ·40; bill—chord of culmen 2·00, its curve 2·10; depth of bill at base 1·40; rictus 1·25; gonys 1·45; greatest width of bill (which is at base of nostrils) ·60; length of nasal slit ·35.

Young: Bill much smaller and weaker than in the adult; without the basal ridge, and with only slight indications of the warty callosities at angle of rictus; the terminal grooves wanting, or faintly indicated; the culmen much less convex; the gonys convex and ascending posteriorly, without the sharp hamular process at base. Such are the general characteristics of the young, though full-grown bird. Birds not grown have their bill much smaller still, entirely without grooves or ridges, acute at the apex, the culmen and gonys perfectly straight; the lateral aspect of the bill is almost an equilateral triangle. Bill basally blackish; terminally yellowish. Legs and feet reddish yellow, obscured with dusky. The eyelids want the fleshy processes. In colours of plumage the young birds are almost exactly like the parents, except that the ashy of the sides of the head is tinted with sooty black, more or less directly continuous with the black of the crown, and lightening into a dusky ash on the auriculars and lower parts of the sides of the head.

Nestlings are covered with blackish down, becoming whitish on the under parts from the breast backwards.

This species presents little variation in any respect from the conditions as above described. The dimensions do not vary much, and even the bill is very constant in size, shape and colours. The plumage of the adults scarcely presents appreciable variation.

The protuberance on the lower eyelid is horizontal, and occupies the whole length of the lid. That on the upper eyelid is nearly perpendicular, and higher than broad; but is short, acute, and never developed into an acute process.

There is absolutely no difference between American and European specimens.

Fratercula glacialis, Leach.—Habitat: Coasts of the North Atlantic; but a more boreal species than *F. arcticus*; Arctic Ocean, Spitzbergen. Near Port Foulke, Greenland (Mus. Smiths. Inst.), "Europe," Greenland (Mus. Acad. Philada.) Not authenticated as occurring on the coast of Maine.

With the colours, and much the general aspect of *F. arcticus*. Larger than that species. Protuberance on upper eyelid more decidedly acicular; in fact intermediate in size and pointedness between that of *F. arctica* and *F. corniculata*. Bill much larger, comparatively and absolutely, than that of *arctica*, and differently shaped; its colours about the same. Bill very deep at the base, the basal ridge rising high on the forehead; culmen much arched, towards the end dropping nearly perpendicularly downwards, so great is its convexity. Upper mandible with four decided grooves; the lower with three, being one more on each than is usual in *arctica*. Gonys more convex in outline, yet not produced posteriorly into so acute a hamular process. Length 14·50; extent about 26·00; wing 7·25; tail 2·25; tarsus 1·20; middle toe and claw 1·90, outer do. 1·90, inner do. 1·45; bill—chord of culmen, 2·40, its convexity 2·60, ordinate of the curve ·45; depth of bill at base 1·70, length along rictus 1·50, along gonys 1·60; greatest width of bill ·65; length of nasal aperture ·40.

The development of the bill, changes of plumage and individual variations of this species are doubtless identical with those of *arctica*. Young birds of the two species might not be satisfactorily distinguishable.

Fratercula corniculata (Naumann), Gray.—Habitat: Coasts and Islands of the North Pacific and Arctic Oceans. Kamtschatka (Mus. Acad. Phila.) Sitka (Schlegel, Mus. Pays-Bas.) Kotzebue Sound, and St. Michael's, Russian America (Mus. Smiths. Inst.) Southern extension on west coast of America not determined. Not recorded from the North Atlantic.

Adult (breeding plumage): Bill very large, especially high at the base for its length, the height being about equal to the chord of the culmen, exclusive of the width of the basal rim; base of culmen and angle of gonys both produced far backward, giving a greatly curved outline to the base of the bill along the feathers of the sides of the head; sides of the bill not distinctly divided into two compartments; nearly plane and smooth in their entire length, with only three faintly pronounced short grooves; culmen exceedingly convex, regularly

arched in the arc of a perfect circle; the tip of the upper mandible acute, moderately overhanging, the basal rim broad and prominent; rictus (not including the part beyond the basal rim of the upper mandible) very short, only equal to the height of the upper mandible at base; gonys sinuate, at first convex in outline, then slightly concave; its length but little less than the chord of the culmen.*

Appendage of the upper eye-lid produced into a long, slender, acutely pointed upright spine; that of the lower eye-lid much as in other species of the genus.

Form otherwise as in *F. arctica* and *glacialis*. Larger than the former, about the size of the latter.

Crown of the head deep grayish black; the patch of this colour triangular in shape, narrowing anteriorly to a point at the base of the culmen. Sides of the head white; the furrow in the plumage behind the eye, and the sides of the lower jaw tinged with dark ash. A narrow distinct line of white along the edge of the fore-arm. Entire upper parts very glossy blue-black; a duller more fuliginous shade of black encircling the neck before, and running forwards on the throat and chin quite to the bill. Other under parts pure white, except a few elongated blackish feathers on the sides and flanks. Under surface of wings dark pearly ash. Legs and feet orange-red, the webs tinged with vermilion. Claws brownish black. Palpebral appendages apparently ashy black. Bill yellow, tinged with red, the terminal portion blackish. Rictal callosities brilliant yellow-orange.

Length 14.50; extent 24.50; wing 7.25; tail 2.75; tarsus 1.10; middle toe and claw 2.00; outer do. 1.90; under do. 1.35; bill—chord of culmen 2.00, its curve 2.25; rictus from basal rim to tip 1.20; gonys 1.75; depth of bill at base 1.80; its greatest width .60; length of nasal slit .40; length of superior palpebral appendage .35.

This interesting species may be recognized at a glance by the prominent horn over the eye, and the extension of the black collar on the throat to the bill. The bill also differs from that of either of the other species in its shortness, compared with its great depth at the base, and the nearly smooth sides, which are not distinctly divided by a ridge or groove into two compartments. The bill is also comparatively thinner than that of the other species, and differently coloured.

Prof. Naumann first described this species from Kamtschatka in his

* The lower mandible in this specimen is so thin near the angle of the gonys as to be transparent. Ordinary type can be read through it.

valuable memoir on the genus in the 'Isis,' as above cited. It has been occasionally confounded with *glacialis*, *Leach*, which is quite a different bird. It is a North Pacific and Arctic species, not recorded from the Atlantic. Excellent specimens are contained in the Philadelphia Academy and Smithsonian Institution: one of these in the collection of the last-named is probably the original of Audubon's plate of "*glacialis*."

Genus LUNDA, *Pallas*.

With somewhat the general aspect of *Fratercula*. No horny appendages to the eyelids. No furrow in the plumage behind the eyes. An extremely elongated crest on each side of the head. Upper mandible with only an indication of a basal ridge along its sides; the culmen divided into two parts, whereof the basal is surmounted by a prominent widened ridge, ending abruptly; sides of upper mandible with three well-marked curved grooves, widely separated, whose convexity points backwards. Under mandible with its sides perfectly smooth, and its base very convex, not concave. Rictus very sinuate; gonys slightly curved. Feet, wings and tail, as in *Fratercula*.

The above diagnosis indicates only the principal features wherein this genus—or subgenus, as might be contended with some reason—differs from *Fratercula*. Except in the bill, eyelids and crest, the genus is exactly *Fratercula*, but the difference in these points seem sufficient to warrant generic separation.

Lunda cirrhata, *Pallas*.—Habitat: Arctic Ocean; Coasts and Islands of the North Pacific; on the American side south to California; of occasional occurrence on the Atlantic Coast of North America (Kennebec River, Audubon: spec. obtained; Bay of Fundy, in winter, Verrill), Spec. in Mus. Acad. Philada., Mus. Smiths., Cab. Geo. N. Lawrence, author's Cab., etc.

Bill very large and heavy, much longer than the head or middle toe and claw, its depth at base three-fourths its length; excessively compressed, the sides nearly perpendicular, except at base of upper mandible, where they bulge a little. Upper mandible divided into two portions; the basal part with its sides perfectly smooth, bounded along the base by a slight oblique ridge of subcorneous tissue, which is scarcely, however, elevated above the common plane, and is minutely studded with points; bounded above by a prominent wide ridge formed of an accessory corneous piece which surmounts this

portion of the culmen; bounded below by the nasal slit; bounded anteriorly by a deep groove whose convexity looks backwards; these four boundaries enclosing a subtrapezoidal space. The terminal part smooth, except in the presence of three widely separated, oblique, curved, deep grooves, whose convexity looks backwards. Lower mandible with the sides perfectly smooth, the base convex, the convexity looking backwards, with slight indication of a ridge of punctulated, subcorneous tissue. General outline of culmen convex; this convexity, however, interrupted near the middle by a notch, forming a re-entrant angle between the two parts of the culmen, each of which, taken separately, is convex in outline—the anterior part the most so. Rictus exceedingly sinuate, the tip of the upper mandible being almost perpendicularly hung over that of the lower; the angle of the mouth occupied by a large fibrous or membranous excrescence, nearly circular in outline, turgid in life; in the dry state shrunken and minutely punctulated. This peculiar warty excrescence seems of nearly the same structure as the base of the bill itself, with which it is directly continuous. Nasal slit short, linear, subbasal, placed close to the commissural edge of the upper mandible. Palate and floor of mouth both deeply excavated; the cutting edge of both mandibles exceedingly sharp.

The eyelids are naked along the edge, but present no thickening or unusual fleshiness. The crest springs chiefly from what would otherwise be a naked linear groove in the plumage from the eyes to the extreme occiput. Some of the feathers begin to grow much above, if not a little anterior to, the eyes. The crest in perfectly adult birds is more than *four* inches long. The feathers have exceedingly slender, delicate shafts, and loose, entirely disconnected, though quite lengthy fibrillæ, and a peculiar silky glossiness.

The wings are of the usual size and shape in this family. The tail is comparatively somewhat longer, perhaps, than in any other Alcidine bird; the lateral feathers a little graduated; the central pair shorter than the next, producing an emargination. The legs are as in *Fratercula*. The claw of the inner toe presents the curious character which has already been dwelt upon in connection with *F. arctica*.

Adult: Bill orange-red; the basal moiety of both mandibles livid horn or enamel colour; the punctulated basal ridge, and rictal callosities more yellowish. Legs and feet obscure reddish; the webs bright coral-red; claws brownish-black. Edges of eyelids red;

“iris pale blue.” Crests pale straw-colour; some of the posterior feathers, which grow from the black part of the head, black at base. Face pure white, abruptly defined. This white occupies the lores and sides of the head to the base of the crest, and encircles the bill, broadly on the sides, narrowly above and below. The black of the crown comes down the forehead to within a fourth of an inch of the culmen; just filling the crown between the crests, and ending with a directly transverse outline. The white on the side of the lower jaw extends to within about the same distance from the under mandible. A narrow, very distinct pure white line along the anterior edge of the fore-arm. Entire upper parts and under tail-coverts glossy black; sides of head and neck, and throat and breast fuliginous brownish black; other under parts the same, but more grayish; under surfaces of wings smoky gray. Wings and tail black; the inner webs of the feathers brownish black; the shaft of the first primary whitish on its under surface towards its base. The preceding description is taken from an unusually fine male specimen in the Smithsonian Museum (Sitka, May, 1867), representing the very highest condition of maturity. The crest is more than four inches long. It is not often that such very perfect specimens are met with in collections.

Length between 15·00 and 16·00; wing 7·75; tail about 2·00; tarsus 1·30; middle toe 2·00, its claw ·50; outer toe 1·80, its claw, ·40; inner toe 1·25, its claw ·50; bill—greatest depth (a little in front of extreme base) 1·90; greatest width (at angle of mouth) ·90; chord of culmen 2·40, of which the terminal portion is 1·40; rictus about 1·90; gonys 1·60; greatest depth of upper mandible 1·15; nostrils ·25 long.

Young (full-grown): Bill smaller than in the adult, and not so deep at the base; sides of terminal moiety of upper mandible perfectly smooth; chord of culmen 2·00: depth of bill at base 1·40. No crest; slight indications of it in some short yellowish filamentous feathers on the auriculars. White line on fore-arm imperfect. White about head as in the adult; but the black reaches nearly or quite to the base of the culmen and gonys. Otherwise like the adult; the under parts rather more grayish. The bill and feet appear to have been less brightly coloured.

This strange bird fairly disputes with *Phaleris psittacula* the claim to be regarded as the oddest of the odd species of this family. The peculiar configuration of the bill strongly characterizes it at all ages, independently of its remarkable head-markings. Though known for

about a century, it has received no specific synonyms from any of the writers whose works have been examined in the preparation of the present memoir. Specimens are contained in nearly all the American collections. The bird is authenticated as occurring on the coast of Maine.

(To be continued.)

The Nest of the Alligator. By Captain H. W. FEILDEN.

THE account of the nesting of the crocodile in Ceylon (Zool. S. S. 2002), reminds me that its ally of the New World, though differing specifically, seems to have many of the same habits in regard to nesting as the Indian reptile.

Holbrook, in his North American Herpetology (vol. ii., p. 59), gives the geographical distribution of "Alligator Mississippiensis" as follows:—"The alligator is first observed on the Atlantic border of the United States at the mouth of the Neus River, in North Carolina; those that are occasionally seen farther north must be considered as stragglers rather than permanent residents. From this point they abound near the mouths of all the creeks and rivers that empty into the Atlantic Ocean, or into the Gulf of Mexico, as far as New Orleans, ascending up the Mississippi as high as the entrance of Red River, six hundred miles."

Having resided several years in the southern states of America, I have had frequent opportunities of watching these reptiles on the rice-plantations of South Carolina and Georgia, where they are numerous. In the summer-time they are to be seen floating like logs upon the water, or basking on the sand-banks.

In South Carolina the alligator hibernates (I am not aware if it does so in the warmer climate of Southern Florida): creeping under the banks, it wallows out a hole and buries itself in the mud. The negroes eat the flesh of these reptiles, esteeming the tail a delicacy, and search for them with long poles: when found in this torpid state they are easily killed.

Florida, however, is the paradise of the alligator; its numerous lakes and semi-tropical climate, in the southern portion of the State, are most conducive to reptile life. In the summer of 1864 I was in Florida, and my tour of duty took me almost to the western or Gulf of Mexico side of the State. My route took me through Sumter

County, and in a little village near Paneesofkee Lake I remained three or four days with an old back-woodsman, who showed me through the wild forests. Paneesofkee Lake, which is about six miles long and some two miles broad, was full of alligators: in some places they were floating ten or a dozen together; hundreds were basking on the banks, and as we rode along the lake-side a frightened one would every now and again slide into the water with a tremendous splash.

I think these Floridian alligators were longer than those further north. It is very difficult to give accurate measurements by the eye, yet I would say many were ten or twelve feet long, and doubtless in many cases much larger. They had probably never been disturbed, or fired at by man, for it is a very out-of-the-way part of the world: there are abundance of fish in this lake, no doubt fine feeding for them.

My guide, who was an intelligent man, seeing me interested in the alligators, asked me whether I should like to see their nests: I replied "Yes." After leaving the lake we soon rode out, through the forest, on to a "savannah": this term is applied in Florida to tracts of land, or rather depressions in the land, which in the wet season are under water, and remain so sufficiently long to prevent the surrounding forests encroaching on their limits; the summer sun dispels these accumulations of water, or dries up these shallow lakes, and leaves behind islands of lovely green turf, surrounded by a sea of forest, where the half-wild herds of cattle collect for the sake of pasture. Here and there on these savannahs you will notice, on the spots of greatest depression, pools of water with reeds growing: in the summer time these are drinking-places for the cattle, and around these little "meres" I was soon pointed out the nests of the alligators. At first sight I thought they must be the nests of birds; but having dismounted, and hitched our horses to the bough of a tree, we walked to the nearest nest and examined it. The nest was a conical mound built up of mud and reeds, about three feet high, with a slight depression in the centre. I do not think it had any eggs in it; if so they must have been covered up. The nest was surrounded by a trench full of muddy water, and from this excavation one of the materials for the nest had evidently been taken. I trust some careful observer will note how the alligator scratches out the mud to form the conical nest, and in what proportion she mixes the reeds and vegetable matter; the process must be very interesting.

My guide told me that the female alligator was perhaps hid in the trench or in some of the wallowing holes, of which there were several in the vicinity of the nest. Only having a switch with me on this occasion, I did not attempt to examine the nest more closely than from the outside of the trench, as a crack on the legs from the tail of a ten-foot alligator would be no joke.

I noticed on most of the savannahs in this immediate neighbourhood, wherever some water was left, several of the conical-mound nests of the alligators. In the shape of the nests and the surrounding trench they seem to agree with their Cingalese consins.

I only had a chance of a hurried gallop through a portion of the State of Florida: from what I saw it must be a grand field for a naturalist who can stand a good deal of roughing.

H. W. FEILDEN.

Snake Poison.

The following letter, dated January 12, addressed to a Madras paper, by Mr. John Shortt, of Vepery, is interesting at a time when much attention is being given to the subject of snake-bites:—

On Saturday, January 8, about 12 o'clock, a Jogee, named Gorooven, who was in the habit of bringing me cobras, brought a friend with him, who had a fresh vigorous cobra, confined in a small earthen chatty, which I asked to see. Gorooven took out the snake, and I examined its mouth to see that the fangs were not tampered with, and finding that they were all right I directed him to put it up, for which purpose he took it out into the compound, and returned into the house. Not long after, one of my servants reported that the man was bitten. I ran out, and saw the man standing on the steps of my house with his left arm hanging and blood flowing from two points on the index finger. I took off my eye-glass, cut the cord, and tied it tightly around the base of the wounded finger, and another around the wrist, and with the penknife from my pocket opened the two points on the man's finger to the extent of about a quarter of an inch each; applied my mouth to the wounds successively, and sucked them freely, drawing out mouthfuls of blood at each time, which I spat out. In the meantime, my servant having brought a basin of water, the wounds were well washed, and I had liquor potash applied to them. I gave the man a large dose of brandy and potash, and ordered my carriage. Having lately shifted into my present house, all my things

were in confusion, and I thought it advisable to take the patient at once to the General Hospital for further treatment. Neither driver nor horse-keepers were to be found, but, with the assistance of a cooly, who happened to be in the compound, the horses were harnessed and put into the carriage, the patient placed in, and I drove to the General Hospital, where the patient was received by the apothecary on duty; and Dr. Thomas, who was sent for, having arrived, kindly allowed me to continue to suggest the treatment to be pursued. I stayed at the Hospital for five hours, visited the patient again at night, and was delighted to find the man better. When I called at the Hospital next morning, except for the wound and swelling on his fore-arm and hand, the man was quite well, walking up and down the verandah.

The cobra was quite fresh and vigorous, over five feet in length, just captured and brought in, and the bite was severe and fully injected with poison, as will appear subsequently from the effect it produced on myself. I was in too great a state of excitement at the time of the occurrence, being so well convinced of its effect, from the numerous experiments I have been and still am carrying out with the cobra poison, to think of risk to myself; and all my anxiety was centred in endeavours to save the poor fellow's life, and it is a source of great pleasure and comfort to me to think that I have been successful in this.

On sucking the wound the blood had a very peculiar taste, which, although it attracted my attention at the time, I cannot now remember to describe. I felt quite well till about some two hours after, whilst at the Hospital, I began to feel a tightness across the gums and roof of the mouth in the space between the canine teeth. This was followed by a sharp stinging pain of a very peculiar burning character. I felt restless and uneasy at first, and then languid and faint, when, for the first time, it struck me that I might have imbibed some of the poison into my system. I became somewhat alarmed and anxious, and laid down on one of the Hospital cots in the ward next to the patients for a few minutes, and on telling Dr. Thomas that I was not feeling well, he kindly suggested that I should have some brandy and water, which I took, and felt the better for it. At 3 P.M. the uncomfortable feeling in my mouth extended not only to the roof internally, but externally in front of the incisor teeth along the gums under the upper lip. I had no appetite for dinner in the evening, and on retiring to bed slept soundly during the night, till

about 4 A.M. the next morning, when I was awakened by an acute burning pain in the roof of the mouth, which continued some couple of hours, gradually subsiding, and leaving behind a soreness. I found that the part was blistered—the tongue to the extent of an inch from the tip quite raw, and the gums of the lower jaw also blistered. I now feel these parts so very sore and tender that I am unable to partake of my usual food.

It is with some reluctance that I have related the effects of the poison on myself, but in the cause of science and truth, and on a subject which has attracted universal interest not only in the profession, but by the public generally, I feel myself bound to relate facts as they occurred. I am happy to say that my patient is quite well; he left the Hospital of his own accord on January 10, but attends daily at my house, as the hand is still swollen and the wound unhealthy.

I hope on a future occasion to detail a mode of treatment to be pursued in all such cases. Of course there is nothing new in the sucking of a poisoned wound; this is well known to medical men generally. I only claim the fact of having brought it practically into successful play; but the potash treatment is original and my own, based on numerous actual experiments, carried out from time to time at much expense, trouble, and risk.—*John Shortt, M.D., in the 'Homeward Mail' of February 19, 1870.*

Natural History Notes from Minas Geraes, &c.

Bloxworth, March 16, 1870.

DEAR SIR,—The following notes from the journal of Mr. Henry Rogers, of Freshwater, now collecting birds and insects, &c., in Brazil, may perhaps interest the readers of the 'Zoologist.'

Very truly yours,

O. P.-CAMBRIDGE.

E. Newman, Esq.

Santa Fé, Minas Geraes, Brazil,

December, 1869, to January 18, 1870.

My dear Sir,—I send you a few rambling notes from my journal, in hopes that some of them may prove interesting. We are getting more butterflies and beetles here than where we were when last I

wrote, but birds are exceedingly scarce. The beauty of the virgin forest exceeds all power of imagination; the trees are one mass of flowers of every tint, and their perfume overpowering: the scene is truly enchanting. There are, however, some items *per contra*; storms, for instance, which come on very suddenly; and when this takes place at night, the effect is grand beyond description; the lightning is more vivid than any I ever before witnessed, and lights up the hills for miles round, rendering every object visible with unearthly distinctness. The thunder shakes the very ground, while the rain pours down in torrents; the wind tears up large trees by the roots, valleys are turned into swamps from the streams, which rush down the hill-sides; in fact, in a few hours the whole aspect of the country is changed. Another *per contra* consists of the snakes, which are very numerous, and most of them exceedingly deadly: since we have been here we have seen some very bad cases of snake-bites. Monkeys are numerous, and their agile movements very amusing to watch; a far different thing watching them here in their native woods from what it is to see them in the Zoological Gardens at home! The other day we had a striking instance of the uncertainty of life in these parts; a fine strong "nigger" taken ill at noon and dead before sunset. The funeral ceremonies interested us much. The friends of the deceased placed a lighted candle in his hand, counted their beads, and held over him a bunch of flowers made in the shape of a cross (showing that they had some knowledge of Christianity); at midnight all the "niggers" met and sung a sort of chant over the corpse; the chanting awoke me, and at times the sounds from their simple and uninstructed voices were melodious and pathetic. We got up at half-past four the next morning to see the burial; the body was slung on a pole and carried by two "nigger" bearers, to the burial-ground—a very primitive-looking place, and greatly neglected: only one grave seemed to be at all respected,—the grave of a very favourite "nigger" we were told,—and this was surrounded with rough stakes: the grave was dry, and the body taken out of its winding-sheet, when we were surprised to see that it had on a pair of black trousers as an emblem of his colour, and a beautifully white shirt as an emblem of his immortal soul—so they told us: earth was sprinkled upon the corpse, and the ceremony was concluded: no prayers were said, but yet the whole was solemn and affecting. This negro was one belonging to Major Copote (of whom I have spoken in former letters): the Major is one of the kindest slave-masters in Minas Geraes, and is a thorough

“Abolitionist:” he is quite prepared for the carrying out of the Abolition-of-Slaves Law, and is most anxious for it to be passed: his hospitality to us has been excessive, and whenever we are near him the best of bed and board are always at our service, with a hearty and pressing invitation to remain with him. The necessity for an Abolition Law was strongly impressed upon us the other day by the causeless flogging of a poor negress; her cries made our blood run cold: she besought us to let her have a gun, on which the monster who flogged her fled as fast as he could: the laws restrained us from punishing him, so we could only remonstrate, but as far as we could judge this saved her from further outrage. Morality seems at the lowest ebb here; there are no places of worship whatever, and nothing to mark one day from another all the year round.

The noises one hears in the forest are very various, and extraordinary to those unaccustomed to tropical life—the “clang-clang” of the blacksmith-frog is most interesting; then the noise of the Cicadas, which I can compare to nothing but the whistle of so many steam-engines, while the illumination at night from fireflies is magnificent. We have just been successful in tracing to its cause one of these strange forest sounds—one which the natives told us was caused by an evil spirit: it was like the sound of a heavy sledge-hammer struck by a strong hand against some hollow substance: we were determined to find out the cause, in spite of the natives who warned us that we should never return from our search; not one of them dared to accompany us. After some hard work, and by proceeding very stealthily, we got close to where the sound seemed to come from, and saw a large and beautiful woodpecker hammering with its beak with all its force at a hollow tree: the sound produced must be heard to be believed, no description can give any just idea of it; so much for the evil spirit. Another sound—a peculiarly strange and unearthly one—is often heard: it always occurs just before or just after dark: some of the natives think it is made by a bird, but others shake their heads ominously and say “no good.” Every one has heard it, but none have ever ascertained its cause: I can compare this sound to nothing except to the sound produced by what children call a “Hum-buzz”—*i. e.*, a piece of wood notched on both edges, and whirled swiftly round by a string tied to one of its ends. The noise I speak of, however, is infinitely louder; at one moment it seems almost in one’s face, at the next, at one’s feet, and then instantly high up in the air. I had often thought it must be caused by some insect, and I hope that we have

almost solved the mystery; for last night while watching our nets for water-beetles the sounds seemed unusually strong, and were closer to us than ever: we immediately commenced striking with our nets (though we could see nothing) in the direction of the sound, and at last captured a large beetle, when at once the sound ceased and we heard it no more that evening. This beetle is among those sent home: it is a magnificent insect, and I feel no doubt whatever but that the sounds we heard were produced by it.

The rainy season has just set in, and it is very difficult now to work. The ground is a strong red earth, and exceedingly slippery when wet; the roads are quagmires; the mornings very cold with heavy white fogs on the mountains, making them appear almost as if covered with snow: these fogs quickly wet one through, and then when the sun bursts out, the steam evaporates from one's clothing so rapidly that one looks as if just out of a vapour bath; then perhaps in less than an hour's time the rain will come down in floods, so that what with fogs, rain and perspiration, we are continually in a state of "soak;" hence as may be imagined, the rainy season is very unhealthy, and a great deal of sickness then prevails; the wonder is how one manages to preserve health at all: up to the present time, however, we have both had good health, though we are out early and late and work hard; we use every precaution in the changing of wet clothes and avoidance of spirituous liquors, of which (cachaca or new rum) the natives drink an immense quantity; it is very cheap, only two shillings a gallon; but this is the only article that is cheap; every other commodity, of even the commonest kind, is two hundred per cent above English prices. Owing to the rainy season, our month's collecting has not been very productive, but we have done all we possibly can, and have sent home over a thousand specimens, besides three boxes of orchids, collected from the Mantigueira Mountains.

On the 1st of January we had one of the storms of which I spoke at the beginning of my letter: it commenced at 6 P. M., and lasted till daybreak next day; a little stream running near our hut became a torrent, and we were nearly washed away; thunder and lightning such as I have mentioned raged continuously, also *hail*, or rather pieces of ice, many of which measured over two inches in diameter; it was terrific; gigantic trees blown down like saplings, and at daybreak the forest appeared a complete wreck; however, we got from the fallen trees several orchids which it would have been impossible to have obtained from the trees while standing. The wet season lasts till

March, when we hope to leave for the interior; there will be then, we hear, eight or nine months' fine weather, and with health and strength we look forward to a grand harvest during those months. The "jiggers" are very troublesome to us, laming one for a week together sometimes; I send you one taken from my foot a few days ago. I hope some of the spiders I have sent home will prove new to you; I only wish you could drop in upon us for a few months and collect them for yourself; you would find plenty to do!

Ever truly yours,

H. ROGERS.

Rev. O. P.-Cambridge.

Ornithological Notes from South Devon.—Puffin. An adult bird was picked up dead on the beach near this town on the 9th of February, and was brought to me. These birds are very unusual visitors to Torbay.

Black Redstart. A very fine adult male shot near Poignton in the beginning of February.

Little Gull. I had the pleasure of examining at Mr. Shopland's, the Torquay naturalist, a beautiful adult specimen of this rare gull (at least it is considered in this neighbourhood as such), in full winter plumage. It had been shot in Torbay on the 12th of February.

Rednecked Grebe. A pair, in immature plumage, were killed in the Bay on the 15th and another on the 19th of February.

Shieldrake. An adult female shot off Brixham on the 15th of February. These ducks are not uncommon about the mouth of the river Exe.

Goldeneye. On the 16th of February a very fine old male, in full winter plumage, was brought to me. It had been shot the previous day on the river Teign.

Great Crested Grebe. These birds are unusually plentiful this spring in Torbay. A very fine adult specimen killed on the 18th; another on the 19th and a third on the 22nd of February. On the 5th of March another beautiful old bird was shot in the same locality, and was, like the above-named birds, brought to Mr. Shopland for preservation, where I had the pleasure of seeing them in the flesh.

Brent Goose. An adult bird was shot out of a flock of five in Poignton Marsh, on the 15th of February, and was brought to me. Three more of these geese were killed in the Bay a few days later: they were all adult birds. These are the first Brent geese that have made their appearance in this neighbourhood since many years.

Redbreasted Merganser. A fine female shot in the Bay on the 22nd of February.

Sclavonian Grebe. A young bird killed in the Bay on the 8th of March.

Redthroated Diver. A very fine specimen, with a bright red patch on the throat and very few white feathers about the head or neck, was shot in the Bay in the beginning of this month, and brought to me. Considerable numbers of these birds in the immature plumage have been seen and killed in the Bay.—*A. de Hügel; Florian, Torquay, March 19, 1870.*

Varieties of Birds.—Seen this autumn:—A snow-white starling, apparently healthy, feathers rich and plumous. A parti-coloured common bunting (*Emberiza miliaria*), the white feathers rather plentiful and tinged with yellow. A cream or almost white sand martin. A snipe from which the colour appeared to have faded, giving it a creamy look, but the pattern of the markings still appearing. In the Ballinlea (Killiney) rookery numbers of the young rooks have white chins, which disappear after the autumn moult.—*H. Blake-Knox; Dalkey, Co. Dublin.*

Early Nest of Longeared Owl.—Yesterday we took four eggs of the longeared owl from the deserted nest of a magpie in our plantations; the nest had been re-lined by the owl with its own soft feathers: one egg had been recently laid, and another showed signs of having been incubated. I think this is very early in the season for such a prize.—*H. F. Battersby; Cromlyn, Rathowen, Co. Westmeath, March 10, 1870.*

Pied Blackbird.—A gamekeeper has just shot near here a beautiful pied blackbird; it has a ring of white feathers round the throat and is otherwise marked and spotted with white.—*Id.*

Ruticilla tithys and R. Carii.—I was very glad to find in last month's 'Zoologist' (S. S. 2061) further remarks on the plumages of the black and gray redstarts, and particularly that Dr. Bree has taken my remarks in the spirit I made them—a desire to know more on the subject. As to *Carii* being synonymous with *R. tithys* I still dissent; that is, if the male *R. Carii* breeds in a different dress from that of *R. tithys*. Before anything can be done to separate or amalgamate these birds, modern proof, which should be easily obtained, is required to prove that there is an adult male of *Carii* from May to June; in other words, that *males* in *Carii* plumage are to be found in spring. If such males are to be found I think it highly improbable that *Carii* is synonymous with *tithys*, for this reason, that every species of redstart should or might have its *Carii* or permanent variety, or, in plainer language, that males would breed in female plumage: this is, I think, never the case, so why make *tithys* the exception? Dr. Bree has not defined his "moulting plumage," which, taken literally, means when the plumage is part summer and part winter, or *vice versa*. I have no doubt he alludes to the first plumage, which is somewhat like *Carii*; but from the context one would fancy that the male *tithys* assumed the female or a similar dress in the winter, and retaining that dress through spring. bred so, or even remained "a permanent variety." Temminck's "sa robe d'automne" is also somewhat vague, but undoubtedly Temminck meant that the male might breed the first year in his first plumage, or first autumn plumage, probably taking birds as his guide from the late or second nest, which still in autumn bore the first plumage, which earlier egged birds would have lost. Many of the *Sylviadæ* leave Britain before the young have moulted, and again large numbers of the young leave in perfect winter plumage: this is caused by the time that elapses between the two nests. I stated (S. S. 2019) that the *first winter plumage* of *tithys* was very similar to the adult, but greatly concealed by long brown edges, and that the following spring, as in the wheatear and others, these fringes became abraded, and gave out the partly concealed but characteristic plumage of the male. Dr. Bree thinks it quite possible that the so-called *R. Carii* is the *young of the year* of *R. tithys* in imperfect plumage, and that in the second year it becomes *R. tithys*. This is quite contrary to my observations on the plumage of the redstarts, &c., which only in first plumage at all resemble their females, losing any similarity

after the *first autumnal moult*. I am well aware many authors write that the plumage of the young stonechat, in first winter, &c., is like the female, but such is not the case, for I have found *male's feathers* sprouting amongst the well-known mottled first plumage of the young, and, as in the redstart, the only difference between old and young lying in the extravagantly deep brown or tawny fringes to the feathers of the latter. The plumages of Mr. Gatcombe are correct—"During the autumn and winter the tips of the feathers are long and tinged with brownish gray, &c.:" this is the first winter plumage of *R. tithys*. An adult *tithys* never has a brown fringe to the dorsal plumage, but in winter the dark feathers of the back are deeply edged with hoary or steel-gray (like a jackdaw's head). I think, contrary to Dr. Bree, that it would make a very great difference, *R. Carii* and *R. tithys* breeding in distinct localities, particularly in the same place and at different levels. In his concluding sentence, Dr. Bree says, "It will, however, be a curious fact, if it is proved hereafter that all the year-old young *tithys* breed in their autumnal coats for the first time." By "autumnal coat" are we to read first plumage or first winter plumage, or the moulting and intermediate stage between the two? The steel-gray bird that I had caged, and which I thought a male, had *no rust colour on the abdomen*, which was pure white, and a brighter tail than that of *tithys*. So pure, perfect, and specific-like was the dress of this bird, and so unlike any other redstart, male or female, that if I had killed it out of Ireland I should have no hesitation in taking it for the male of a distinct species. Has *Carii* any rust-colour on the belly? Is the male of *Carii* much dissimilar from the female? Are all the birds called "*Carii*" rightly so called—are not many of them genuine females of *tithys*?—*H. Blake-Knox; March 4, 1870.*

Early Appearance of the Wheatear.—On Saturday last (the 5th of March) I saw two wheatears (*Saxicola ænanthe*), which had been killed near Plymouth on that day; and I have no doubt that the few mild days which occurred just before that time tempted them to cross the Channel. Several more were seen on the coast.—*John Gatcombe; Stonehouse, Plymouth, March 8, 1870.*

Early Whinchats.—On Sunday morning last, on my way to a little country church near here, I was surprised to see a pair of the pretty little whinchat, male and female: they followed me along a hedge for some distance, and once or twice I got nearly close to them. Is not this very early for them? I do not remember to have noticed them in previous years before early in April. I was more surprised to see them thus early, as the part was very exposed, and it was blowing a sharp north-east wind at the time.—*Edward Sweetapple; Eynsham Paper Works, near Oxford, March 8, 1870.*

Wagtail in pure White Plumage.—Did I ever mention to you that in the autumn of 1868 a specimen of the wagtail (I cannot say whether *Motacilla Yarellii* or *M. alba*) was shot here in pure white plumage, without a mark of any kind?—*J. W. Harris; Derwent Bank, Troughton via Carlisle.*

Anthus ludovicianus vel *Anthus rufescens*?—Whether Mr. Boynton's bird is *Anthus ludovicianus* or not I do not believe can be said positively by Mr. Reeks, Mr. Gould, or any other naturalist. The reasons given by Mr. Reeks are most unsatisfactory, as a few fractional differences in measurements go for very little. As to the bird being *A. rufescens*, I am not convinced even by the dictum of so high an authority as Gould. The outer tail-feathers are those of this bird certainly; but then Baird mentions an instance in which the same feathers existed in *A. ludovicianus*. Did Mr. Gould ever see a specimen of *A. rufescens* in any age or plumage which was

olive-green below, with dark spots? In fact, the bird is an abnormality; but, in my humble opinion, it resembles *A. ludovicianus* more than any other pipit. I shall not grieve or be disappointed should it turn out anything else.—*C. R. Bree*; *Colchester, March 19, 1870.*

Buff Variety of Sky Lark.—A buff variety of the sky lark was sent me for stuffing on the last day of December, 1869: it was shot at Beeston Regis, and proved on dissection to be a female. I have previously preserved two other examples of this variety, both of which were also females.—*T. E. Gunn*; 5, *Upper St. Giles, Norwich.*

Shore Lark near Weymouth.—I saw two male shore larks at Weymouth, Dorsetshire, on the 25th of November last: they had been shot a few days before by a man who was after wild fowl on Lodimoor, a wild place close to the sea, about a mile from Weymouth, and were set up for a gentleman in that town. They were in very handsome plumage, but had been much damaged by large shot.—*William Borrer*; *Cowfold, Horsham, Sussex, February 24, 1870.*

Shore Larks in East Yorkshire.—Perhaps some of your ornithological readers may be interested to hear that three shore larks (*Alauda alpestris*) were shot on the east coast on the 19th inst. They were not associating with any other species, and were all male birds.—*F. Boyes*; *Beverley.*—'Field' of *February 5th.*

Shore Larks near Dunbar.—Two specimens of the shore lark were shot out of a small flock, near the Tyne Estuary, by a boy, on the 23rd of January last. Both specimens (adult males) are now in the possession of Mr. Francis Balfour, of Whittinghame.—*R. G. Wardlaw Ramsay*; *Whitchill, Lasswade, N. B.*

Rock Doves at Salisbury.—Some unusually large flights of pigeons have been passing over this city during the last few days: they were first observed on Saturday, March 12th, about 8.30 a. m.; their course was from south-east to north-west. They appeared in such immense numbers as occasionally to darken the air, and were noticed up to the 17th, but the flocks gradually diminished in numbers from the 15th. The amateur sportsmen of the district were afforded quite a pastime, and I am told that upwards of a hundred fell to their guns; but owing to the height and rapidity with which they flew many escaped the onslaught that was made on them. An examination of some of those that were killed proved them to be the blue rock dove (*Columba livia*). Mr. Wheaton, who shot several, told me that on opening their crops he found in some beech-mast and turnip-green, whilst others had nothing whatever in them; they were nevertheless all fat and in good condition. These large flights of pigeons are the more worthy of notice, since the rock dove is quite a rare visitor in this district, although stragglers are occasionally shot here during the winter months.—*Henry Blackmore*; *Salisbury, February 18, 1870.*

The Case of Bustards at Swaffham.—In reference to my notice in the February number of the 'Zoologist,' touching bustards in Suffolk and Norfolk, Captain Feilden, in this month's number, writes, "I should much like to know whether the case of bustards Mr. Moor refers to, then in the possession of the Rev. R. Hamond, of Swaffham, Norfolk, is still in existence." I have written to an old schoolfellow of mine, now in France, with whose brother (now dead) I visited Mr. Hamond's collection at Swaffham. I have just received the following answer:—"The particulars you state of the case are quite correct. On the death of the Rev. Robert Hamond, the original possessor, all his stuffed birds devolved upon his sister, Miss Hamond, and remained in the same house until her death, which took place some four or five years since,

when they passed to her nephew, Mr. Anthony Hamond, of High House, Westacre, four miles from Swaffham: he died about three months since, and I have no doubt the birds remain with his widow and family in that their family mansion, with the addition of my poor brother's own collection, a very considerable and valuable one, including a female bustard, which was shot by Mr. Elwes, in Norfolk, when I happened to be staying at Swaffham, about forty years ago. My brother stuffed it and cased it himself. At least three females still remained about in Norfolk without any male, and some of their eggs were found, but which were of course useless. My brother once saw all three together, but I believe was without a gun at the time. I fancy one was afterwards shot by some one, and the others disappeared. It is now many years since one has been seen. I do not know the present owner of Westacre, but have no doubt any gentleman would be willingly allowed to see the collection—a sight of which is well worth a pilgrimage of some distance." My schoolfellow (above referred to) is Mr. William Dugmore, of The Firs, Hampstead, and his brother the late Rev. Henry Dugmore, both natives of Swaffham.—*Edward J. Moor; Great Bealings, Woodbridge, Suffolk, March 16, 1870.*

The Scarborough Bustard's Egg.—My note on the nesting of the great bustard in Yorkshire (S. S. 2063) disagrees, as far as dates are concerned, with Mr. Alwin Bell's note on the same page. We refer to the same egg, and I have since applied for information from the Museum, and my dates are in accordance with the writing attached to the specimen. Morris ('History of British Birds,' vol. iv. p. 3), writes as follows:—"Henry Woodall, Esq., of North Dalton, has informed me that in the year 1816 or 1817, James Dowker, Esq., of that place, killed two near there with a right and left shot, and saw a third I believe at the same time: a nest that had been forsaken was also found, with one egg in it, which is now in the Scarborough Museum." The same authority adds that the bustard brought into Scarborough (referred to by Mr. Bell) was *found* by the huntsman of the Scarborough harriers, and that the bird had been shot a few days before by the keeper of Sir William Strickland. This I think is far more likely than its having been *killed* by the hounds, for, unless previously wounded, I doubt very much if harriers could catch a bustard. One portion of my note requires explanation and amendment, namely, where I refer to the late Mr. John Wolley, and his desire to purchase the egg of *Otis tarda* from the Scarborough Museum. Professor Newton has kindly drawn my attention to this point, and has given me the following information:—Mr. Wolley knew and made a note in his egg-book of the existence of this egg, as far back as 1843. A subsequent note in his egg-book in 1850 adds that this specimen had been "boiled with the notion of preserving it," and was of "bad colour." About 1856, when on a visit to Scarborough, his sympathies for this egg were again aroused, and pointing out to the Museum Committee the interest attached to this specimen, he made a formal application to that body, offering in exchange a considerable number of the rare Lapland eggs that he had collected. The Committee of the Museum declined the proposal, and were doubtless right in doing so, as they have retained in their Museum a most valuable local specimen. I have added this to banish a suspicion, that might have arisen from my careless writing, that the late Mr. John Wolley offered money, or unknown to the Museum Committee endeavoured to procure this egg. The explanation is due to the memory of one of whom no naturalist can think without the truest regard.—*H. W. Feilden; Chester Castle, March 11, 1870.*

Great Bustards on the Yorkshire Wolds.—The great bustard said to have been killed by the Scarborough hounds in the autumn of 1816, I have since been informed, on the authority of a gentleman now living, and who was with the hunt at the time, was not killed by the hounds, but taken up alive by the huntsman in a turnip-field, having been wounded, it was supposed, by a gamekeeper a short time before. The field in which the bustard was taken is on a farm near the village of Hunmanby, and known as Hunmanby Field, about nine miles from Scarborough. Mr. Williamson, I find, is mistaken in supposing the egg in the Scarborough Museum was found on the same moor, and in the same year, as this bird; and when he kindly gave me the information communicated in my former note (S. S. 2063) respecting it, had probably forgotten the note in the Museum referred to by Captain Feilden, and which doubtless affords the best data, premising it was penned in March, 1840, at a time when the facts were comparatively fresh in the memory of the presenter and chronicler, Dr. John Bury. One of the two great bustards shot by Mr. James Dowker at North Dalton (mis-spelt "Salton" in my former notice) in 1810, was given by him to Dr. Bury, who presented it to the Prince Regent (George IV.): the other bird Mr. Dowker had cooked, and the year previous to that—*viz.* in 1809—five bustards were seen on the same moor, but were very wild, and none shot. At Rye, a few days ago, I was shown an old lithographed drawing, nicely executed, of the late Rev. R. Hamond's case of bustards: the male bird is in the centre, his wings slightly raised, with a female on each side, one represented feeding, and in the fore ground, near some tufts of grass, the two eggs and "little prince" are seen. On the back of the picture, in manuscript, I read the following account of it:—"This is a correct representation of a case of the large bustard (*Olis tarda*, Linn.), containing one male, two females, one young one, and a couple of eggs, which were shot and preserved by the Reverend Robert Hamond, A. D. 1820, and are now in his collection at Swaffham, Norfolk.—Hastings, May 1st, 1831." The naturalist in whose house I saw the drawing told me that, about the time the Bridlington specimen occurred, a male bustard was shot near Lydd, in Romney Marsh.—*Alwin S. Bell; Clive House, Hastings.*

Ruff in Somersetshire.—A ruff was killed on Sedge Moor, at the end of last week, and given to me by Mr. Scarlett, of Taunton, to whom it had been sent with some plovers. There was no appearance of any ruff, but some of the feathers on the body were already assuming a brighter colour.—*Cecil Smith; Lydeard House, near Taunton, March 3, 1870.*

Ruff in Norfolk.—A fine male was killed on the 25th of February, at Stalham, in Norfolk.—*T. E. Gunn.*

Sabine's Snipe.—Herewith I send you a specimen of Sabine's snipe, thinking it might be interesting to some of your numerous readers.—*J. W. D.—'Field.'*

[It is singular that a gentleman should record the occurrence of so rare a bird in so bald a manner, affording no clew to the country, date, sex or peculiarities of the bird, or the name or residence of the recorder! I have seen the bird and find it correctly named.—*Edward Newman.*]

The Moa or Dinornis as Human Food.—Dr. Julius Haast, of Canterbury, New Zealand, has been making a most interesting series of observations on some recently discovered cooking pits or kitchen-middens of the original inhabitants of these islands. The results of these investigations have been laid before the Zoological Society of

London by Professor Owen. Dr. Haast is of opinion that the various species of *Dinornis* must have been extinct for many hundred years, inasmuch as the Maories, the present inhabitants of New Zealand, have not even any traditions respecting them. Recently Dr. Haast has been fortunate enough to discover a large moa-hunters' encampment, with cooking-places and kitchen-middens, extending over more than forty acres, near the river Rakaia. In this he has made many excavations, which have given great insight into the habits of the primitive race of people who exterminated the *Dinornis*. Numerous rough stone implements were found, broken from boulders in a peculiar manner, or made of flint and other silicious stones, and closely resembling those found at Amiens and other places where pre-historic remains have been obtained. The cooking places or ovens are built like those of the Maories, and covered with silt and vegetable soil. The moa bones were found in considerable numbers, and must have been obtained from several different species of *Dinornis*. The greater number belonged to *D. casuarinus*, the next to *D. didiformis* and *D. crassus*. There were also some bones of *D. elephantopus*, and of *Palapteryx ingens*, but none of the very largest species, *D. giganteus* and *D. robustus*. The bones had all been broken so as to get out the marrow, the tibiae being broken on both sides near the ends, and scooped out apparently with flint flakes, as if the eatable matter had been thus extracted from those parts of the bone difficult to break. The long bones had been smashed in the middle, and stones were found which had doubtless been used for this purpose. The skulls had been scooped out below so as to get at the brain, and the larger bones of the bodies of the birds were found in fragments. Along with these bones of the moa, Dr. Haast found also numerous bones of the native dog, of seals, sea gulls, and the tympanic bones of several species of whale, but no human remains: so that it would appear certain that the ancient inhabitants who hunted the moa were not cannibals. As no implement of warfare or chase were found except the flakes of flint and obsidian, it is supposed the birds were caught in pits or snares. There was a total absence of ornaments of any kind, excepting two wing-bones of the albatross which were bored through, and might have been used as ornaments.—'Field.'

Sir George Grey on the Date of the Extinction of the Moa.—At the meeting of the Zoological Society on Thursday, a letter from Sir G. Grey, in reference to Dr. Haast's communication respecting the date of the extinction of the moa in New Zealand, was read by Dr. Sclater. Sir George combats Dr. Haast's conclusions as stated in the 'Field' of February 5. In the course of the communication Sir George Grey says:—"I have often found moas' bones under similar circumstances, sometimes covered by a greater depth of soil; but I have regarded the ovens as of comparatively recent construction. These ovens are Polynesian cooking places. The Australian and several other savage races cook their food in quite a different way. With moa bones I have several times found bones of the kakapo (*Strigops*), a bird now extinct in the districts where I found the ovens. I have seen many hundreds of old ovens indistinguishable from those in which moa bones were found, and in some of these cases the natives were able to tell me the circumstances under which war parties or travellers had formed these very ovens many years since. I would observe that the native word "moa" is a Polynesian word, and the very word which new comers to the island of New Zealand would be likely to have applied to the *Dinornis* if they had found it in existence there. The natives all know the word "moa" as describing the extinct bird; and when I went to New Zealand twenty-five years ago the natives invariably spoke to

me of the moa as a bird well known to their ancestors. They spoke of the moa in exactly the same manner as they did of the kakapo, the kiwi, the weka, an extinct kind of rail, in districts where all these birds had disappeared. Allusions to the moa are to be found in their poems, sometimes together with allusions to birds still in existence in some parts of the island. From these circumstances, and from former frequent conversations with old natives, I have never entertained the slightest doubt that the moa was found by the ancestors of the present New Zealand race when they first occupied the islands, and that by degrees the moa was destroyed and disappeared, as have several other wingless birds from different parts of New Zealand." The circumstance that Dr. Haast found in these cooking places only flint and obsidian, and no implements of warfare and the chase, goes far to prove that they could not be formed by the Maories, who were, comparatively speaking, a highly civilized race when they first took possession of New Zealand, having at that time magnificent boats, elaborate carvings, &c., &c. These could hardly have perished, as the same dryness of soil which has preserved so admirably even the gelatinous tendons of the moa would also have prevented the decay of any kind of any hardwood implements that were deposited with them.—'Field.'

Green Sandpiper at Hasketon.—A green sandpiper was shot by a gentleman, as it rose from a small brook on some marshy meadows, at Hasketon: its occurrence is somewhat rare in this part of Suffolk.—*E. C. Moor; Great Bealings, Woodbridge, Suffolk, December 27, 1869.*

Spurwinged Goose in Wiltshire.—A gentleman who resides at the Manor Farm, Upavon, and not, as erroneously stated, at "Charlton Farm," or "Netheravon," had noticed from his window a large strange-looking bird beside a pond near the home-stead, in company with his tame geese. Surprised to see how amicable it was with his own birds, and curious to ascertain what it could be, he went out, hoping to get a closer view of it, when suddenly it took wing, alighting again in a meadow not far off. Seeing enough to convince him that the bird was very wild and very peculiar in appearance, and not wishing to lose it altogether, he returned for his gun, and succeeded in shooting it. Fortunately it was sent for preservation to a "naturalist" living in Devizes, and to him I am indebted for the following account:—"This bird," he writes, "was in excellent plumage and in very good condition, and was, I believe, a two-year old bird, or its back plumage would have been of a black hue, whereas it was mottled with gray: when walking its gait was very upright, more so than our tame geese, and its legs are longer. The spur upon its wings is about three-eighths of an inch long; and I found, upon examining the contents of its stomach, that it had been feeding upon corn and vegetable substances. It weighed four pounds one ounce, was twenty-seven inches in length, and four feet two inches in breadth. According to the instructions received, I stuffed it in an upright position, just as it had been seen when alive."—*Henry Moses, in 'Science Gossip' for March, 1870.*

Ruddy Sheldrake near Tralee, County Kerry.—I mentioned (Zool. S. S. 2019) the occurrence of a ruddy sheldrake in the County Kerry. Now, owing to the kind attention of Mr. J. C. Neligan, of Tralee, the owner of the bird, I can record for future use the particulars of its capture and habits, as observed in the County Kerry, which have been sent me by that gentleman. It was shot on the 17th of August, 1869, on a lake about ten miles to the west of Tralee: this lake is close to the sea, and only separated from it by some low narrow sand-banks. "Towards the end of last March,"

says Mr. Neligan, "I heard that a very strange bird was constantly seen on the lake, and, in common with three or four others, I made every effort to get the bird: she was, however, so very wary and shy that it was impossible to get within shot of her. After she had been disturbed by our efforts she left the lake, and the next I heard of her was her being seen on one of the large bays in the north of this county, about twelve or fourteen miles from the lake. She was, I believe, fired at once or twice on the bay, but was not hit. She again appeared on the lake during the summer, and in August was shot. Some friends of mine watched the bird very closely, and, observing her haunts, one of them lay under cover in one of the haunts, and so got a shot within range: he slightly wounded her, and brought her home, to all appearance not much hurt: the bird would not eat and pined away, dying in a few days." Prior to the appearance of the sheldrake, Mr. Neligan says, the wind for some days was from north to north-east, and that the bird remained on or about the lake and neighbouring bay from its first appearance in March till killed in August. It had a very peculiar musical note, and unlike that of any of the duck or goose tribe that Mr. Neligan had heard. I have repeatedly seen the bird at Messrs. Williams's, of Dame-street. It is a male bird in second summer plumage—in other words, a little beyond one year old: the plumage much resembles that of an adult, and would be so this spring had the bird lived. Mr. Neligan is wrong in thinking it a female, unless dissection has proved it an excessively old one in part plumage of the male. By a reference to Newman's Montagu (1866) I find that only four have occurred in Britain to that date, three in England and one in Ireland: the latter, a fine male, is in the Museum of the Royal Dublin Society. This makes the fifth recorded British specimen.—*H. Blake-Knox*; March 2, 1870.

Smew at Yarmouth.—An adult male smew, in splendid plumage, was shot at Burgh, near Yarmouth, on the 30th of December last, and forwarded to me for preservation. The smew is rather rare on this coast.—*T. E. Gunn*.

Rare Grebes in Devonshire.—Several grebes, both great crested and Slavonian, have made their appearance on the coast of Devon during the late severe weather, which has not been the case for many years past. I saw a Slavonian grebe shot about an hour ago.—*J. Gatcombe*; March 8, 1870.

Rednecked Grebe at Teignmouth.—A specimen of the rednecked grebe was sent me from Teignmouth, on the 22nd of February.—*Cecil Smith*.

Slavonian Grebe on the Wandle.—On the 15th of February our gardener shot a specimen of the dusky grebe, a young male, on our water at Carsbalton.—*A. H. Smees*; March 5, 1870.

Slavonian Grebe at Taunton.—I saw, a few days ago, a specimen of the Slavonian grebe in the flesh, which had been shot in a brick-field opposite the convent on the Shore-ditch road. It was seen, in company with another, to settle on a small pond in the field; the other, however, was not shot. The person who killed it gave it to Mr. Bidgood, the curator of the Museum, for his private collection. The bird was an adult female, in winter plumage. It was killed on Friday, the 4th of March.—*William J. Chalk*; *The College School, Taunton*.

Redthroated Diver on the Devonshire Coast.—Redthroated divers (*Colymbus septentrionalis*) are very numerous on our coast at the present time, which is often the case after a severe winter. The young birds are now assuming the plumage of the more beautifully spotted bird of the two figured by Bewick under the names of the

“first and second speckled divers,” and the birds old are getting the leaden-gray neck and red patch on the throat peculiar to the breeding season.—*J. Gatcombe.*

Blackthroated Diver and Redbreasted Merganser on the Thames.—On the 26th of January I had the good fortune to obtain at Leigh a specimen of the blackthroated diver: it is an immature male: a few black feathers, however, were just beginning to appear on the throat, more especially at the sides and upper part of the throat. On the same day I shot a redbreasted merganser, an adult male, which was swimming in company with a female.—*A. H. Smee.*

Puffin on the Dublin Coast in February.—A puffin was picked up dead on the sea-shore last February. It is a bird of last year, in its first winter plumage: it is very seldom a puffin is met with in winter. I have killed two of these “winter puffins” myself; also one in second winter, the only example I have ever seen or heard of: they are in my collection.—*H. Blake-Knox; March, 1870.*

Avocet and Little Auk at Rye.—At Rye lately I saw another of the avocets (an old bird) taken there during the snow storm at Christmas (Zool. S. S. 2024), and a little auk shot in Rye Harbour.—*Alwin S. Bell; March 12, 1870.*

Little Gulls on the Yorkshire Coast.—At Scarborough, Mr. Roberts tells me in a letter, he has had five little gulls, three of them mature. I have also had two sent me from Bridlington Quay, both shot one day in February; and a correspondent informs me that fourteen little gulls, chiefly young birds, have been shot there, on the coast, this winter.—*Id.*

Little Gulls at Bridlington Bay.—During the late severe easterly gales we have had great numbers of wild ducks and sea birds in Bridlington Bay, and among them several little gulls, of which, as far as I am at present able to ascertain, about thirty have been shot, fourteen of which have come into my possession: of these nine are adult birds and five young ones. Mr. Yarrell, in his description of this bird (adult in winter plumage), omits to mention that the under surface of the wings is of slate-gray: this is almost uniform in some, while in others the primaries are almost black, the shafts of the feathers being white. The primaries, secondaries and tertiaries are all tipped with white, and the whole under surface of the body has a beautiful roseate tint, which soon disappears after death. The young are not so large as the adults, and weigh on an average from eight to twelve drachms less; the roseate colour is not so perceptible, and the legs and feet are pale pink; those of the old birds are vermilion; claws black or dark brown. The largest of the adults measures eleven and a quarter inches in length, and weighs four and a half ounces, and the smallest of the young measures nine and a half inches in length, and weighs three ounces, but the latter is an exceptionally small specimen. I do not remember ever seeing more than three at one time, and I particularly noticed that the old birds and young ones did not associate; for instance, when I saw two together, they were invariably either both old or both young. They were never to be seen except when very stormy; when the weather is milder they have invariably disappeared, although we have immense numbers of the more common species.—*Thomas Boynton; Ulrome Grange, Lowthorpe, Hull.—‘Field’ of February 26th.*

Abundance of the Little Gull on the Norfolk Coast.—During the middle part of February the little gull occurred in some numbers along the Norfolk coast, and many specimens were shot. I received a dozen birds for preservation for different parties: all these were males and adult specimens, with the exception of two, which were birds

of the year. All the specimens were in good condition, and rather fat. The food consisted of small fish (including the ten-spined stickleback, several specimens of which I found entire in their stomachs), worms (I took six large ones from the stomach of one bird), and shrimps: these were mixed with the remains of fish-bones, pebbles and bits of sea-weed: other items found consisted of bits of chalk and mutton-fat. The weight of specimens ranged from (immature birds) three ounces to (adult birds) four and a half ounces.—*T. E. Gunn.*

Little Gull in the City.—On the 26th of February last I was shown, by the kindness of Mr. Ashmead, of Bishopsgate-street, a very fine male of the little gull that was captured at noon on Friday, the 10th of February, in Cornhill, in the City of London.—*Frederick Bond; March 1, 1870.*

Kittiwake Gull.—Mr. Cordeaux notices two young kittiwake gulls in the plumage of the first winter, in which the feet were not black but greenish gray (S. S. 2053). I have a specimen, killed in the beginning of January, which presents the same character; otherwise it agrees perfectly with Mr. Blake-Knox's description. Do some kittiwakes change, as to the colour of their feet, earlier than others? Perhaps Mr. Blake-Knox, to whom we are indebted for so much valuable information as to the puzzling changes of plumage in this family, will favour us with his opinion.—*Edward R. Alston; 205, Bath-street, Glasgow, March 10, 1870.*

Wild-fowl at Hastings.—A brent goose and a shieldrake were shot on the coast last month; and in the game-shops I have seen for sale a male goosander, two mergansers, a bittern and several redshanks, hanging up amongst quantities of wild duck, snipe, wigeon, &c., chiefly from the London markets.—*Alwin S. Bell; March 12, 1870.*

Gilthead at Penzance.—By the kindness of Mr. John Symons, jun, of Mayon, a specimen of the gilthead (*Chrysophrys aurata* of Cuvier and Yarrell) was brought to me on the 1st of March. It was taken off the Land's End. As this fish but rarely occurs in British seas, I trouble you with a few details. Length over all $18\frac{1}{2}$ inches; eye to origin of caudal 13 inches; depth at origin of dorsal $5\frac{1}{2}$ inches; thickness on line of depth $2\frac{1}{2}$ inches; between and in front of, rather than over, the eyes was an iridescent golden band, which faded off into iridescent green on the top of the head, and ended in a faint iridescent violet patch on each side of and across the head just over the top of the operculum. On and across the operculum, and on the body of the fish at the origin of the lateral line, was a large irregular dusky, scarcely black, spot. Colour over the back leaden blue, on the sides silvery blue, and on the belly white. There were traces of longitudinal lines along the lower sides and belly, but if ever of a yellow colour they had faded. The irides had lost their colour. The dentition was well marked, and was in close accordance with Yarrell's vignette of it. The fin-rays of my specimen were as under:—Dorsal 11—13, the two first spinous rays being joined from the base about half-way up the anterior ray, which was the shorter. Pectoral 16, the first two joined for the lower portion of their length. Ventral 1—6, as I believe, but owing to the stiffness of this fin when I examined it I am not certain about the latter figure. Anal 2—11, the first spinous ray being a double ray, connected throughout its whole length and having a single termination. Caudal 17, the central ray being very broad and soft. Above (or rather inside the upper edge of) the pectoral, and springing from the base of it, was a bit of free cartilage, an acute

isosceles in form, and three-fourths of an inch long. The fish was taken in a gray mullet net, in shallow water, off a sand-beach occurring in the midst of a range of precipitous cliffs having deep water close to them. This is the first specimen of this fish I have met with here. I have had it preserved for our museum.—*Thomas Cornish; Penzance, March 4, 1870.*

Musical Fish.—While making an exploration in the bay of Pailon, situated to the north of the province of Esmeraldas, in the republic of Ecuador, I was coasting along, about sunset, when I suddenly heard a strange sound, extremely grave and prolonged. At first I thought it came from a fly or hornet of extraordinary size. But seeing nothing above me or in the neighbourhood, I asked the rower of my pirogue whence the sound came. "Monsieur," he replied, "it is a fish which is singing thus. By some it is named the Siren, by others, Musico." Having advanced a little further, I heard a multitude of different voices, which harmonized together, imitating a church organ to great perfection. I at once stopped the pirogue, and listened for a long while to this singular music. It is not only in the Bay of Pailon that I have enjoyed this phenomenon: it occurs in several places along the coast, and even still more markedly in the river Matajé, especially at the foot of a little promontory called Campana (the Bell). On going up higher than Capana, the traveller reaches Campanilla, where a similar circumstance occurs. I have heard it said that, in the river Molino, an affluent of the Matajé, the same singing of fish has been heard. It is evident, therefore, that to whatever species these fish belong, they are capable of living in two qualities of water; inasmuch as that of the bay is purely salt, while that of the river is brackish—at least, it mingles with the ocean only during tidal hours. The piscine performers execute their music without being disturbed by the presence of boats, and without showing themselves at the surface of the water, and this during several successive hours. One is surprised that so loud and distinct a sound can proceed from an animal not more than ten inches long. The fish itself has nothing particular in its external conformation to commend it. The colour is white, with some bluish spots on the back; at least, this is the fish which one catches with a hook on the spot during a concert. It is towards sunset that the fishes begin to make themselves heard, and they continue their song during the night, imitating the notes of an organ very exactly,—as when one is near the door of a church, but outside, not inside the sacred edifice.—*Translated for 'Science Gossip' by the Rev. W. W. Spicer, from a paper by M. O. de Thoron, read before the Académie des Sciences.*

[Several papers on this interesting subject have appeared in earlier volumes of the 'Zoologist.' I may especially refer to one quoted at p. 7237 of the original series.—*Edward Newman.*]

Proceedings of the Entomological Society.

February 21, 1870.—A. R. WALLACE, Esq., President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—'Additions to the Tenebrionidæ of Australia,' by F. P. Pascoe; 'Catalogus Methodicus et Synonymicus Hemipterorum Heteropterorum Italiae indigenarum,' by Dr. Antonio Garbiglietti; 'Ueber Parthenogenesis bei Polistes gallica,

und über Pædogenesis der Strepsipteren,' by C. T. E. von Siebold; presented by the respective Authors.

Election of Members.

Prof. J. C. Schiödte, of Copenhagen, and Prof. C. T. E. von Siebold, of Munich, were elected Honorary Members.

Messrs. G. T. Porritt, of Huddersfield, and Bernard J. Lucas, of Upper Tooting, were elected Annual Subscribers.

Exhibitions, &c.

Mr. J. Hunter exhibited a *Plusia*, captured by Mr. Stock (who was present as a Visitor) in the New Forest, and believed to be *Plusia ni*. (See Ent. Mo. Mag. v. 107; Ent. Ann. 1869, p. 124; 1870, frontisp. fig. 3.)

Mr. Albert Müller exhibited some insect-galls in the flowers of the tansy: he had received them in September from Mr. Dorville, in whose garden, near Exeter, the growth of the plant was encouraged, from finding that flies, moths and bees resort to it when the flowers are fresh. The galls had been submitted to the author of 'Vegetable Teratology,' and Dr. Maxwell Masters remarked upon them as follows:—"It appears to me that the whole flower (floret rather) has become hypertrophied, and at the same time the stamens, style and ovule have entirely disappeared. I judge the structure to be an altered flower because it springs from the axil of a bract or palea, and because at the summit are five little teeth precisely like those of the corolla. In my book, for the most part, insect deformities are passed over for two reasons; one that I am quite ignorant of Entomology, and the other that the changes produced by insects are often so far foreign to the natural conformation as not to admit of comparison with it. I should, however, have inserted your tansy under hypertrophy of the flower, had I seen it previously." Mr. Müller added that the perfect insect had not yet been bred, but the larva showed it to belong to the Diptera, though not a *Cecidomyia*.

Mr. Pascoe exhibited specimens of *Nepharis alata*, *Castelnau* (Révue Zool. 1869), from King George's Sound, and observed that the insect described by King, in the last Part of the Trans. Ent. Soc. N. S. Wales, under the name of *Hiketes thoracicus*, was manifestly identical therewith, so that Mr. King's name must sink as a synonym. By both authors the insect was referred to the *Colydiidæ*, but Mr. Pascoe thought the genus would be more appropriately placed near *Monotoma*.

Mr. Pascoe requested the opinion of Members on a point of nomenclature. Dejean, in his Catalogue (ed. 1834), proposed the name *Diurus* for a genus of *Brenthidæ*; but no description was published until Pascoe himself gave the generic characters in 1862. In 1852 Motschulsky described a genus of *Telephoridæ* under the name *Biurus*, which in Gemminger and Harold's Catalogue (1869) is changed to *Diurus*, thus clashing with the genus of *Brenthidæ*. And the question was, for which of the two genera ought the name *Diurus* to be retained?

Several Members asked whether it was certain that no description of the Brenthid genus, no tabular statement, or comparative remarks sufficient to constitute a description of the genus, were published before 1862? And Mr. Pascoe replied, that though the genus and the name were adopted by Schönherr in 1840, and though Westwood had in 1848 described and figured a species, neither author had specified any generic characters.

Many Members objected that no alteration of Motschulsky's name was admissible, and that *Biurus* ought to be retained. Mr. Bates protested strongly against the numerous alterations in names made by Gemminger and Harold.

Mr. Dunning remarked that, according to the view promulgated in Mr. G. R. Crotch's paper recently read before the Society, the Brenthid genus was entitled to priority as from 1834: if this ground failed, there was something in the contention that the genus was well established by the publication of Westwood's figure in 1848. But even on the assumption that *Diurus* dated only from 1862, he maintained that the name ought to be applied to the genus of Brenthidæ. The publication of *Biurus* in 1852 left *Diurus* unoccupied in 1862; and the publication of *Diurus* in 1862 was a sufficient reason for not altering *Biurus* into *Diurus* in 1869. If *Biurus* must be altered on the ground of its hybrid formation, it cannot now be altered to *Diurus*, but must be altered to some unoccupied name; in other words, *Biurus* must be abandoned altogether, and a totally new name given to the genus of Telephoridæ.*

The President assented to the conclusion that the publication of *Diurus* in 1862 was a bar to the alteration of *Biurus* into *Diurus* in 1869. And it appeared to be the general opinion that *Diurus* ought to be retained for the genus of Brenthidæ.

Paper read.

The following paper was read:—"On some Butterflies recently received by Mr. Swanzy from West Africa;" by Mr. A. G. Butler.

* In 1833, Gyllenhal, adopting a MS. name of Chevrolat's, described *Ceocephalus furcillatus* (Schönh. Curc. i. 359). In 1834, Dejean, in the second edition of his Catalogue, separated *furcillatus* from the genus *Ceocephalus*, and proposed the genus *Diurus* for its reception. In 1840, Schönherr (vol. v. p. 510) adopted both the genus and the name. In 1848, Westwood described and figured the same species under the name of *Diuris* (*sic*) *forcipatus* (Cab. Orient. Entom. pl. xv. fig. 3). In 1862 Pascoe (Journ. of Entom. i. 392) formulated the generic characters. Motschulsky's *Biurus* was published in 1852 (Etudes Entom. i. 13).

Mr. Crotch's contention is (Trans. Ent. Soc. 1870, p. 41) that "genera proposed in Catalogues on *previously described* species are entitled to priority." If this contention be sound, then Dejean's *Diurus* dates from 1834, eighteen years prior to Motschulsky, and Mr. Pascoe's difficulty does not arise.

So also, if *Biurus*, in spite of its hybrid formation, is to remain unaltered, Mr. Pascoe's difficulty does not arise.

These, however, are modes of avoiding the question, not of answering it. Let us consider it from Mr. Pascoe's own point of view, admitting for the present argument the

two postulates which the question assumes, (1) that the Brenthid *Diurus* dates only from 1862, and (2) that *Biurus* is not to be retained.

When a name is simply mis-spelt, I hold that the spelling may be corrected, but the name retains its priority. Stephens wrote *Oinophila*, which has been corrected into *Cenophila*; but the genus *Cenophila* is properly referred to Stephens, and dates from the time of the publication of *Oinophila*.

But when a name is mal-formed, the malformation must either be retained or discarded *in toto*; in the latter case, a new name is substituted, and the new name dates only from the time of substitution.

Hybrid names fall within the latter class. They are malformations, not mis-spellings; if not retained in their deformity, they are to be eradicated and replaced, but not reformed. If Stephens had written *atricephalus*, would any one cite the same insect as the *melanocephalus* of Stephens?

The fact that by the alteration of a single letter the hybrid *Biurus* can be transferred into the pure-breed *Diurus* is at first sight misleading. It looks like a very simple case of correcting a mis-spelt name. But in truth it is much more than this. To convert *Biurus* into *Diurus*, an operation is performed precisely analogous and equivalent to the conversion of *atricephalus* into *melanocephalus*. *Melanocephalus* is not an emendation of the old name; it is a new name. So *Diurus* is not an emendation of *Biurus*; it is a new name.

I hold it to be incorrect to cite it as *Diurus* of Motschulsky. It is the *Diurus* of the 'Catalogus Coleopterorum,' dating only from 1869. So *Ditoma*, substituted by Illiger for the *Bitoma* of Herbst, is incorrectly cited as *Ditoma* of Herbst. It is the *Ditoma* of Illiger, and takes priority from 1806, and not from 1793.

If (as for the present argument is assumed) hybrid names are not to be retained, I repeat that the proper treatment of such names is to reject them altogether. And such is the practice, at least with specific names. For where the oldest specific name is a hybrid, it is not attempted to make the name either wholly Greek or wholly Latin, but the mongrel is cast out, and the next oldest name is taken in its stead.

If *Diurus* had not been already in use, it would of course have been open to Gemminger and Harold, when discarding *Biurus*, to adopt *Diurus* as a new name for the Telephorid genus. But in selecting a new name, they were bound to select one that was not pre-occupied. When re-naming the genus in 1869, they were debarred from taking a name applied to another genus in 1862.

In truth I suspect that when they changed *Biurus* into *Diurus* they had forgotten the existence of Dejean's genus. Lacordaire (*Gen. des Coléop.* iv. 368) remarks of *Biurus* "nom hybride, et qui dans sa forme régulière (*Diurus*) a déjà été employé pour des *Curculionides*;" whence I infer that in 1857 the Professor held the pre-occupation of *Diurus* was a bar to the alteration introduced by Gemminger and Harold in 1869.

The answer to Mr. Pascoe's question, in my opinion, clearly is, that the name *Diurus* properly belongs to the genus of Brenthidæ; that the alteration of *Biurus* in 1869 does not relate back to 1852 so as to oust the *Diurus* of 1862; and if *Biurus* is not retained, some unoccupied name must be found for the genus of Telephoridæ.

In conclusion, I beg to present the advocates of priority-at-any-price with the following fact. The type-species of *Diurus* was originally published (by a misprint) under the specific name *turcillatus* (Schönh. *Curc.* i. 359). It is true the error was corrected seven years later (Schönh. *Curc.* v. 510); but of course that goes for nothing, and an intelligent posterity is expected to acquiesce in the perpetuation of *Diurus turcillatus!* to welcome this typographo-diabolical Turklet, and immortalize this two-tailed bashaw!—*J. W. D.*

Bird-haunts of the Outer Hebrides.

By THEODORE C. WALKER, Esq.

(Continued from S. S. 2077.)

II.

EARLY next morning we emerge from the stifling hut into the joyous fresh air: we are accompanied by the schoolmaster, an intelligent Edinburgh student, and two of the best climbers of the island. The storm, mist and rain of the night before have vanished, and the west wind blows strong and fresh off the Atlantic. There being little heather in Mingalay, the Avifauna is rather different to some of the other islands. The natives depend for their subsistence partly on sheep, and partly on fish and birds and their eggs. As we tramp over the short turf up the hill-side, the rock pipits are blithly rising in the air, and sweetly singing with quivering wings, as they descend to their nests among the stones. Great ragged-looking hills rise on all sides, till they break off into abrupt precipices of tremendous height; a very thin covering of short turf, with black patches of stunted heather, a few inches high, with bare rock peeping out everywhere; lichen-covered gray stones, fallen from the hill-sides; the weird melancholy bleat of the sheep, the drifting clouds yet clinging to the highest pinnacle of rock, the hoarse croak of the raven, as flying lazily along he answers his mate, add to the desolate look of the scene. The whinchat is "chacking" on every bare rock; the common bunting is sitting singing on the turf dykes, and the lark is carolling high in the air, as we toil up the hill-side. These four birds—the rock pipit, the bunting, the whinchat and the lark—seem the commonest insessorial birds of these islands.

Reaching the edge of the precipice, what a scene unfolds before us! We are on the verge of the highest precipice of the whole "Long Island," as they call the Outer Hebrides; but the wind is so strong that it is dangerous to approach the edge. Close on our left is the Isle of Bernera or Barra Head, with its white lighthouse on the edge of the precipice, Sinclair's Isle and Horse Isle between, and at every point of this island the precipices are split up into seams, rents, caverns and bridges of rock: the huge billows of the Atlantic are dashing with the rage of despair, sending the white foam and spray in salt tears of agony streaming down their sides. Under us, to the

left, is an islet, spanned by a narrow bridge of rock, at its base ragged pinnacles of rock, terribly black and still amid the churning white foam. Cautiously descending, and crossing the "Devil's Bridge," I lay down behind a block of rock and look down. Close below, looking so near that one could almost leap across, yet so far that the strongest arm cannot throw a stone to reach it, is a stack of precipitous rock, its sides and summit covered with birds: one can distinguish the groups of rock birds on the ledges, like black and white specks, the ledges all white with excrement, but one cannot distinguish the different species—only a confused mass of birds sitting in groups and flying thick about the face of the rock. A pair of ravens, which have been narrowly watching me, now draw near, and out from the cliff beneath hop two juvenile ravens, and settle on the Devil's Bridge, while I in vain try to stalk them.

The climbers are below me, searching for eggs, but as the wind is too strong I do not follow them, but take out my telescope and scan the stack of rock and the grand precipices around me. Every crevice and cranny of rock teems with countless thousands of rock birds, so small, as seen from this great height, that the eye can only distinguish the white patches and the long lines of birds dotting them: the air is alive with birds, like clouds of gnats, flying about the cliffs, but the distance is too great to observe accurately. This stack of rock rising close in front is a breeding-place of the larger gulls, the great blackback, the herring and the lesser blackback; these, though they are for ever haunting the precipices, watching for eggs left exposed by the rock birds, seldom build in the midst of them, but generally on stacks of rock near. As I watch I see several larger gulls restlessly floating over the cliffs, and several pairs of herring gulls fly and float above me, laughing and cackling; for go where you may, by night or day, in the Outer Hebrides, if the herring gull sees you trying to stalk anything, it is sure to come flying round just out of gun-shot, alarming all the birds in the neighbourhood. The great blackback rises lightly from its bulky nest, and with motionless wing is slowly lifted higher and higher by the wind; now, altering the angle of its wings, swift as an arrow, it floats before the wind, then curving gracefully round, facing the wind, it is slowly borne aloft, advancing, to again float everywhere backwards and forwards without one flap of its beautiful wings. But while I am watching, what are those two gulls which soar and float above the stack of rock—gulls the like of which I have never seen before, the size of *Larus canus*, but with a black head?

As they float within a few yards, and I see their size, I am fairly puzzled to know what they are: they are certainly not *L. ridibundus*, being too large, and this not being the habitat of that species. They were without doubt breeding on the stack, but being very wary they would not alight, though I stayed long and patiently, watching them: it was useless to shoot, for they would fall into the boiling sea below, and no boat could near the stack. I need not say that I could not see the colour of the feet, the gulls always flying with their feet folded under the feathers. I have thought it might have been Bonaparte's gull; but reluctantly I am compelled to leave without coming to any satisfactory conclusion.

I now rejoin the climbers, who have gathered many of the eggs of the guillemot and razorbill; but I shall leave all descriptions of the breeding and habits of the rock birds till we reach Barra Head, only saying that the whole of the west and south sides of Mingalay for three or four miles is one vast breeding-station, but the wind being so high I did not descend far, as in Bernera there are many sheltered nooks where one can observe the habits of the rock birds at leisure. During the last two seasons, owing to the enormous destruction of the rock birds at other stations, for ladies' plumes, the number of kittiwakes have perceptibly increased, as here they can breed in perfect safety from the most greedy bird-killer, for they cannot be shot from above, and the base of the precipices is so full of rocks, and such a current and surf is always running, that it is dangerous to approach near: every true naturalist will rejoice at this.

Climbing once more to the top of the precipice, I watch how the natives of these islands catch the birds. They use the flesh and eggs for food, often salting it down for winter use. One of the men sits on the verge of the cliff, at the mouth of a small gully, up which the wind, striking the precipice, comes with such irresistible force that on approaching near one is almost driven backwards; while the razorbills and guillemots, unable to settle on their ledges near, are whirled aloft like chaff. As some birds try to reach the ledges from below others dangle in the air over the gully, trying to get down, their wings and legs going all ways, in a ludicrous fashion, as they try in vain to settle. The climber, grasping his bird-pole firmly in both hands, is lying on the edge, his feet firmly planted against the rock, and as a luckless puffin is dangling in the air, trying to get down, he strikes it from below, and sends the stunned bird spinning far behind him, where his mate picks it up. The climber says that if the puffins

or razorbills are hit very hard on the sternum or breast-bone they are not injured, but a very slight hit on the head stuns them at once.

Having procured several birds, we descend the moors, just as the pelting rain again comes on, shrouding the sea in mist, curling up the precipice, wreathing round us, as we scramble down the steep hill-side to the huts far below. The birds are plucked, boiled, and the flesh gnawed off by the men, but is not much relished by us, as it is tough, red and fishy-tasted: the eggs when fresh are delicious, those of the razorbill and guillemot having a rich orange yelk, and the white of a semitransparent opal colour.

The wind having moderated a little, we run down one of the boats, and launch her with great difficulty, owing to the heavy sea; then with six sturdy rowers we rise over the huge waves, which roll into the sheltered bay. Directly we get out of shelter the wind catches us with such tremendous force that we can hardly hold the oars. I pull stroke-oar, and straining every nerve, we force the boat inch by inch against the wind, which beats down upon us with solid irresistible force. On among the terrible current as it surges up around us, we get wet and weary, but manfully sticking at it for more than an hour, we get under the Shelter Rock. The gannets swoop and glide among the waves, and the rock birds fly and tumble and dive among the surf, unmindful of the wind. We jump ashore on the celebrated Barra Head with feelings of thankfulness.

Bernera, or Barra Head, is the last and most southerly island of the stormy Outer Hebrides; a gigantic rock, low at the north-east end, rising higher and higher, till facing the Atlantic, it dips suddenly down, as if awe-struck at the mighty ocean, in a terrible precipice, on the brow of which the white lighthouse stands, calmly shedding its intermittent light across the angry waste of waters—a light which, flashing and waning, like many a Christian's light, is often obscured when most direfully wanted. In the storm, when the air grows thick with vapour, clouds wrap around it, hiding its wasted light, for which eager eyes strain in vain. A trudge of a mile up the steep ascent, and we reach the fortress-like buildings with the white cross over the door, erected to propitiate the Catholic islanders. And now, furnished with letters from the Commissioners, we are most heartily received, and in the clean and comfortable rooms of the lightkeepers we talk over our plans for descending the precipice, and eagerly long for to-morrow's dawn.

III.

The island of Bernera, or Barra Head, is well described by Macgillivray, in his 'British Birds' (vol. v. p. 351). That accurate nature-loving naturalist describes in glowing terms its precipices as seen from below. I shall endeavour in the following chapters to describe this celebrated bird station, to traverse in imagination the awful precipices, and afterwards to describe the rearing of the young rock birds and their departure.

The island is about a mile in length and half a mile in breadth, the north-eastern end dipping into the sea, terminating in a group of rocks at Nisam Point, rising at the south-west end to the height of 683 feet, on the edge of which precipice the lighthouse is built. The lighthouse stands at the head of a gully, with two peninsulas of rock running out each side: across the end of one is a ruined fort, with an underground apartment, used by the natives in the olden time for shelter. The name of the north peninsula is Sloch-na-Page, the other Beorlin. It is not my intention to describe the many times I have been down, but to picture one, and the habits of the birds seen.

On the morning of the 3rd of June, having equipped ourselves with guns and game-bags, my brother and I, accompanied by a light-keeper, whom I shall call "Mac," prepare to descend the precipice of Beorlin. We have cast off coats and boots, and in our stockinged feet scramble down the steep grassy slope for a hundred feet or more, till we reach huge masses of fallen rock, some imbedded in soil, others resting on fragments of *débris*, which an incautious step would send bounding into the boiling sea beneath. Mac's pet Skye terrier follows us everywhere, now frantically rushing at the puffins' holes, and with struggling yelps scratches at them, whence he drags out a puffin, which he bites at the back of the head, and brings for our approval. Slowly descending, the "grass," as the bladder-campion is called, gradually gives place to bare rock, the *débris* of which lies scattered all about: a slip or a false step, and one would be hurled from ledge to ledge into the sea beneath. No such fears oppress me, as keeping close to Mac, the best climber in the Long Island, we get on to the hard rock, free from the loose *débris*.

The puffins, which higher up have sparingly tunnelled their burrows in the sandy soil, and are demurely sitting watching us, are here in great numbers, sitting in bands of about a dozen on fallen rocks,

so tame that they allow one to approach almost within arm's length, turning their heads on one side, and tottering about, then with a fall forward they stretch out the head, expand the tail to the utmost, stretch out their beautiful orange-webbed feet wide on each side, and with small wings flapping vigorously, flicker off into the boiling sea beneath. The puffins which we see at the entrance to their holes or in the cracks are the males, and Mac says they are rather darker in colour than the females; that the male feeds the female while sitting, and that the birds which the natives kill by means of the bird-pole are nearly always males and very lean, while the females which are noosed while sitting on or near their eggs are females and are very fat. Searching in the cracks and crannies, we find several eggs of the puffin; those which are laid on the rock are quite clean and white, with pale spots in the shell, and of very various sizes, but those that are laid higher up in the turf-holes are stained dark ochre or brown by the wet mud. The precipice is now so steep that the base is hid, and we are climbing on the hard greenstone rock; but many dangerous places have to be leaped, for we are getting among the thick of the birds. The heart leaps with enthusiasm, and the head and eye are braced with eagerness to be among them. Leaving my brother in a secure place, to look after a few clean puffin's eggs, Mac and I scramble on; and now the puffins are giving place to the razorbills, which in many places lay in crannies, like the puffins, but more often on exposed ledges. The razorbills sit bolt upright, eyeing us with palpitating hearts and bills gaping with fright as we near them, then walking to the edge of the rock, with a fall forward like the puffin, they spread out their legs and tail, and rapidly fly below into the sea to await our departure: it seems the usual habit of the puffin, razorbill and guillemot, at starting to walk the edge, then jump or fall forward, spread out their wings, and fly down to the sea: they seem unable to rise from a flat surface, owing to of the weight of their bodies and the shortness of their wings. This being the height of the egg season they nearly all have eggs, and Mac and I scramble and climb into many perilous places to get rare varieties of eggs: the common varieties are of a white ground, sparingly spotted at the larger end with large and small blotches of chocolate and black-brown; others are of a pale bluish ground, with the same markings, and others are minutely freckled and blotched with dark brown all over. I am not successful in finding any razorbill laying *two* eggs, as Audubon says they do. This seems to be the most numerous species, and on every ledge or cranny razorbills

crowd, some laying flat on their eggs, others are standing bolt upright beside them, doubtless male birds, which as we approach fly off, while the females stop till the last minute: many fly up from the sea towards us, but sheer off on a nearer approach. These ledges are foul with greenish white excrement, but are not nearly so filthy as the broader ledges of the guillemots further down, which are crowded with sitting and standing guillemots, the ledges coated and running down with greenish filth, and the feet, and breasts and eggs of the guillemots foul with uncleanness.

The lovely kittiwakes are flickering round us as we descend lower, and, in their dire extremity of terror, fly lightly as spirits close to our faces, crying "kittiw-e-a, kittiw-e-a," circling round and round, while the heavy rock birds seem to fall off the ledges in fright. Many nests of the kittiwake are large enough to fill the crown of a hat, but these are old nests which the bird repairs and builds on year after year, many nests being much smaller: they are built of mud, sea-weed and campion-stalks, and are in many cases stuck to the wall on such a narrow crevice that they look like swallows' nests under the eaves of a house: many nests have only one egg, others have three, others none. I watch several birds building: one bird brings the mud and weed, while the other sits inside, turning round and moulding it with her breast and bill, scraping up the sides with her black feet. The eggs of the kittiwake are not nearly so finely marked as some gathered at Ailsa Craig several years back.

THEODORE C. WALKER.

(To be continued.)

About the Kittiwake's First Winter Plumage, &c.

By H. BLAKE-KNOX, Esq., J.P.

IT was my intention to answer Mr. Cordeaux's inquiry about the colour of the feet of the kittiwake (S. S. 2053), but I have had so much to do latterly that I could not even find time to put my foot on the sea since last autumn. The colour described by Mr. Cordeaux is quite natural and not at all abnormal, as my paper on this bird might make it appear. In answer to Mr. Alston (S. S. 2108) as to the irregularity of change of colour in the feet of the first winter kittiwake, there is decidedly a frequent development of colour earlier in some

birds than others, but this does not materially affect the question. My account of the plumage of this bird (S. S. 549) is perfectly correct, but a year less than I now make the kittiwake immature. I have also erred in a way only too common amongst naturalists—that is, in terseness; in fact, when I wrote this paper I thought I was drawing it out too long, but I find that I did not write enough. I am of opinion now that the monthly plumages of the gulls should be written, to carry the plumages in one unbroken series of dissolving views from immaturity to age. “Dissolving” is by no means an inapt term to apply to their plumages, for fading and rejuvenating has a great deal to say to the transfigurations the gulls go through. As I find the subject is interesting to some I will give some notes on the immediate point at issue.

At S. S. 548, it will be seen by my synopsis of the plumage that I have given no colour for the feet till the second winter. I did this because it would be almost useless to give any determined colour before, and even at that age. After the autumnal moult the feet gradually change from black to *primrose-colour*, shading to brown.

At S. S. 549, No. 3, represents first plumage—that is, when the bird first takes wing, and after the hairs and down drop off the tips of the feathers. The feet at this time are distinctly and decidedly black, as is also the bill.

Passing No. 4, we come to No. 5, first winter: “Bill and feet still black.” Correct as far as the season goes, say till December. It is here my shortcoming begins. I omit the feet and the bill of the spring half of first winter, which I should have given as—First Winter, B. Sometimes from December, as often from January, the feet show decidedly greenish gray,—an almost indescribable tint,—which as the spring advances becomes more determined in its pale primrose-colour cast. The bill at the same time shows evident traces of the dissolution of the black, the grayish yellow appearing like clouds in amber, gradually advancing in strength, till in March and often sooner it is perfectly tortoiseshelled, if I may make the word, with the two colours, black and sickly yellow.

In my plumage No. 6, first spring, I have culpably omitted both bill and feet colouring. I cannot, of course, be accused of ignorance in this respect, as the kittiwake, I am sorry to say, far, far too often meets my view, shot in scores at every season—for perhaps a more persecuted creature does not exist.

No. 7. *Second Summer*.—Feet more of an olive-brown. This olive-brown colour is of course built upon the grayish or olive-green of first spring.

It remains for me now to describe the feet of a first-winter bird after January, and I think it will agree with Mr. Cordeaux's and Mr. Alston's experience. At the present time I have only my journal from commencement of 1867 to refer to, and perhaps exact quotations will be more curious as showing the indescribable nature of the kittiwake's feet at this age. The first note for 1867 is February 20:—"Met a few dozen of kittiwakes; four were fired at by —, and killed; the first was a beautiful adult bird, still in winter dress. The plumage of this bird struck me as very peculiar and beautiful, a most striking effect being produced by the shafts of the gray-blue feathers of the upper surface being darker than the webs of the feather, giving a striated appearance even to the primary coverts. The bill was intense lemon-colour; the lips and mouth red-orange; the orbits changing to the vermilion-red of summer. The second was in first winter: bill lemon and black; inside of mouth red-orange, except the edges of the bill, inside which are pure lemon. *Feet tawny, the prominent parts brown*. New feathers coming in the back, band at neck growing scanty, rest of plumage as in each winter."

The next note I thought worthy to make that year was on October 28th. It bears somewhat on this subject, so I quote it: "* * * Second autumn; still had brown feathers in the wing scattered through the coverts (this alludes to the dark band). The bill pale yellow and black, the mouth a dull fleshy orange-red: *the feet gray, clouded with black*. Many birds seen two months ago were in full second-winter plumage, having lost all trace of the old wing band."

Turning to 1868, I find a quantity of useful notes, but generally foreign to the present question. Any remark with regard to the feet I give.

"February 6. *Second Winter Plumage* (written *in extenso*; I only give the flesh colourings):—Bill: dull greenish lemon-colour, clouded slightly in parts with black; irides dark brown; orbits black. Inside of mouth and lips red. *Feet greenish cinereous, clouded with brown*."

Same day. "*First Winter Plumage*.—Bill with scarcely any yellow. Mouth yellow-orange. Orbits black. Black bar still on neck. In the back and scapulars most of the feathers are those of first plumage, worn almost cinereous. There is nothing indeed different, but a few new

plain lead-gray feathers in the back, the brighter colour of the mouth, the slight yellow on the bill, *and the paler feet* from the first plumage.

“March 18. *First Spring*.—A kittiwake in first spring was quickly losing the black band on neck. It has a remarkably narrow black band on the wing. (In collection).

“*Third Winter* or *Third Spring*.—In apparently adult state; had the bill still strongly clouded with black, in fact, as strongly as that of first spring. The orbits were almost vermilion, the feet a bright deep brown tinged with yellow (orange). (In collection).

“Another, shot same time and same age, had the orbits dull red-brown, the feet similar, the bill lemon-yellow, tinged with greenish at the end.

“March 24. * * * Several others in first spring had the dark band on the neck, others partly, others quite without—all were banded on the wings and tail. These were observed on the wing within oar's length of the boat, and were not molested.”

I have first spring kittiwakes in collection, shot in March, quite devoid of the dark band on the neck, having lost it by moult, whereas others seen and killed in June still had remnants of it left.

“March 10. Bills and feet of three adult kittiwakes shot to-day :—No. 1, feet dark brown, inclining to black; soles of phalanges, not including the web, orange-red—the webs above paler than the surrounding parts; the tibia and the tarsal joint tinged with yellowish. Bill bright chrome-yellow, greenish yellow at tip. Inside of mouth and lips intense red; orbits dark, slightly tinged with vermilion; iris deep brown. No. 2. Orbits vermilion; bill deep chrome-yellow. Rest as No. 1. No. 3. Feet hair-brown, webs paler brown, ankle tinged with yellow; orbits slightly tinged with red; bill lemon-yellow.

Same date: “*First Winter Plumage*.—Two kittiwakes now lying before me in first winter are strikingly dissimilar. No. 1 has quite lost the black bar on neck, and is in new plumage on the back. No. 2 has the dark bar on the neck as full and beautiful as in October.” Here follows an elaborate description of the plumage, from which I take the following:—“No. 1. Bill tortoiseshelled with lemon-colour and black. Mouth and lips orange-red. Irides dark brown, orbits black. Feet: *Front of tarsi and toes and exposed part of tibiæ yellow flesh-colour, irregularly tinged—more especially on the joints, edges of webs, and outside of tarsi—with brown; the joints on the sole are dark brown, the soles of tarsi being also strongly tinged with brown.*

Exposed part of tibia tinged livid. No. 2. Bill with very little lemon-colour, glossy black; mouth orange-red; orbits black. Feet strikingly similar to No. 1, *the flesh-colour inclining to very pale greenish lemon-colour.* Both are males, and both are in my collection.

“June 5, 1868. *Second Summer.*—Two in this stage were very different—a male and female. The male was a backward bird in very faded plumage, that of first winter being retained and very worn; the dark band was still on the neck, though faded to deep brown. The female was in the normal plumage of the season, the back feathers being all renewed and like the adult, the neck quite devoid of the band, and that on the wing faded to brown. The bills, of both dull lemon-yellow, shaded with black, the mouth deep red-orange, the orbits black. The feet dull yellowish gray, shaded with blackish, especially at the joints and the outside of tarsi, where they are quite dusky. (Female in collection).

So very worn are the quills, tail and wing-coverts of these birds that flight must have been a labour. The general summer and autumnal moult, which embraces these parts, would in all likelihood have commenced in a week or so, both birds after it presenting the same appearance. These birds give a good idea of the uncertainty of the spring change, and to one unacquainted with plumage would appear in different ages.

In 1869 I have also copious notes on the kittiwake, but, as I have gone further than I intended already, I shall refer but to one, on the 10th of February, when I had every winter of the kittiwake before me at the same time, *viz.*, first, second, third and adult. After having described the plumages minutely, and compared each and every winter, I describe the flesh-colouring thus:—

“*First Winter.*—The feet are browner than earlier in the season (very true). Bill clouded with pale lemon-yellow and black; orbits black; irides deep brown. Mouth orange-red.

“*Second Winter.*—Bill lemon-yellow, tinged with smoky black. Orbits dark mahogany or brownish black. Lips tinged with red, mouth deep red. Feet (of two): webs dark sand-colour, lightly tinged with the palest lemon-yellow, in one bird darker than in the other; tops of the toes, front of tarsi dark sandy brown, the joinings of the scutella inclining to dirty lemon-yellow white, the outside of tarsi and of outer toe dark smoky brown. Inside of tarsi, tibiæ and their joints strongly tinged with very pale lemon-yellow; in one bird the lemon-colour is hardly more than a sandy white.

“*Third Winter*.—Except for the plumage difference in the wing, this age is very like the adult. The feet are duller, more black and less brown, and have little or no orange tints through them; the lips generally less conspicuously red; the orbits brownish, though frequently red; the bill generally with dusky clouds at its base, but this, after second winter, is not a rule.”

In my account of the kittiwake plumage (S. S. 552) after No. 12, I make the bird adult. Since writing this, however, I find that I can trace immaturity for another year, so that the kittiwake would not breed till four instead of three years. This stage is well defined. Read No. 13. *Third Winter*.—As the adult, but that the pencil feathers of the wing and those that form the extreme primary coverts and which lie solely over the first primary quill are more or less clouded with black, sometimes only a spot on the pencil, and I believe that even at times this spot is wanting. This age is very distinct from the glaringly apparent second winter. The feet, bill, &c., I could not define from the adult. The orbits, however, are never so red.

No. 14. Link 6. *Third Spring*.—Change from winter to summer. The head turns pure white, the orbits increase in red, the feet get more yellow into the brown.

No. 15. *Fourth Summer*.—Much like the adult, but as the wings moult but once a year and that in autumn, the black markings are still apparent about the pencil. At this age it associates with the young birds of one and two years old, and is found quite away from the breeding haunts. This is undoubtedly the barren kittiwake of authors.

After the next autumnal moult there is certainly no difference from the adult.

H. BLAKE-KNOX.

March, 1870.

Extracts from a Memoir intituled ‘A Monograph of the Alcidae.’

By ELLIOTT COUES, A.M., M.D.

(Continued from Zool. S. S. 2091).

Genus CERATORHYNCHA, Bonaparte.

Base of upper mandible with a large upright horny protuberance. Under mandible with an accessory corneous piece interposed between its rami, near their symphysis. Bill shorter than the head, stout, very deep at the base, tapering rapidly to the tip, much compressed, the

sides erect, smooth, the culmen very convex, the rictus gently curved, the gonyes nearly straight, except at symphysis, where it is bulging. Nostrils short, linear, subbasal, marginal, impervious. Eye small; no palpebral appendages. No crest; no furrow behind the eyes; slender elongated feathers on each side of the head. Inner lateral claw of usual size, shape and position. Other details of form almost exactly as in *Fratercula*. Size large; general form robust.

This curious genus may readily be distinguished from all others of the family by the characters indicated in the two first sentences of the above diagnosis. The intercalation of an accessory corneous element at the mandibular symphysis is an entirely unique feature in this family. It seems very much like the "interramicorn," as the writer has elsewhere called it, which is found in the albatrosses, as one of the characters which distinguish those birds from other Procellariidæ. In the present instance, it is a feature of especial importance and value, as it helps greatly to distinguish this genus from *Sagmatorrhina*, or, to be more explicit, to separate *S. Suckleyi* from *C. monocerata* in every stage of growth.

The affinities of this genus are decidedly with *Fratercula*, after *Sagmatorrhina*, of course. Apart from the peculiarities of the bill, it agrees with the former in most points of structure, except the eyes and inner lateral claw. It does not require comparison with any other genus. It is represented by only a single species, according to the writer's way of thinking,—*Suckleyi* falling most naturally, as well as can be judged at present, in *Sagmatorrhina*.

Ceratorhyncha monocerata (Pall.), Cass.—Habitat: American and Asiatic coasts and islands of the North Pacific. Japan (Perry's U. S. Expl. Exped.), Kamtschatka (Mus. Acad., Philada.), Pacific coast of N. A., from Russian America to Farralone Islands, Cal. (Mus. Smiths. Inst.). Breeds as far south as Japan and California.

Adult, breeding plumage (No. 46,517, Mus. Smiths., female, Sitka, May, 1866).—Bill orange-yellow, culmen and base of upper mandible dusky; horn dull yellowish. Feet apparently dusky yellow; below, with the tarsi posteriorly, blackish; claws black. Crown of head, back of neck, and entire upper parts glossy blue-black. Sides of head and neck, and of body along under the wings to the flanks, with chin, throat and upper part of breast, and under surfaces of wings, clear grayish ash, pretty trenchantly defined along its line of junction with the black. Under parts from the breast pure white; this colour shading insensibly into the ashy on the breast and sides. A line of

white along the edge of the fore-arm. Exposed portions of wing and tail-feathers black; their inner webs grayish brown, basally lighter, the shafts of the primaries dull whitish at base. A series of elongated, stiffish, acicular feathers on the side of the head from the rictal angle; another similar series from the eye backwards to the sides of the nape, pure white. The individual feathers are about an inch, more or less, in length; the length of the white stripes produced by them collectively is about two inches.

Length 15·50; wing 7·25; tail 2·50; tarsus 1·20; middle toe and claw 1·85; outer do. 1·70; inner do. 1·40; chord of culmen, excluding width of horn, 1·00, including it 1·40; rictus 2·00; gonys, including length of accessory piece, 1·10; height of bill from tip of horn to protuberance at symphysis 1·25; from culmen at base of horn to same ·80; nostril to top of horn ·75.

Immature, but with a perfectly developed horn, and accessory symphyseal piece (No. 23,391, Mus. Smiths., Straits of Fuca).—Colours somewhat as in the preceding; but the white of the under parts everywhere obscured by ashy-gray, which tinges the tips of the feathers, giving a marbled aspect to the parts, lightest on the middle of the belly, shading insensibly on all sides into the uniform ashy gray of the other under parts. Black of upper parts, especially on the head, with a decided brownish tinge. Only traces of the acicular white feathers on the sides of the head. Bill smaller than before; the horn, however, perfectly developed, rising nearly half an inch above the culmen. Rather smaller than the preceding; length between 14 and 15 inches, wing barely 7, bill along rictus 1·60, its depth at base, exclusive of height of horn, ·65.

Young (No. 23,392, Mus. Smiths., Straits of Fuca).—This specimen is just not quite fully feathered, patches of down adhering here and there. The bill is small and weak, hardly more than half the size of that of the adult: its general shape, however, is nearly attained. The base of the upper mandible is covered with a soft skin, about as far as the end of the nostrils. That part of the culmen formed by the ridge of this skin is sunken below the level of the rest. Unmistakable indications of the future horn are present, in a small knob on the ridge of this skin. In the present dried state this knob is shrunken, presenting the appearance represented in the plate. In life it was probably a small full rounded protuberance, rising a little above the level of the culmen. Between the mandibular rami, at the symphysis, there is a slight fold or ridge of skin, evidently the matrix of the

future accessory corneous element. The upper mandible is mostly blackish; the lower dull obscured reddish. The legs and feet appear to have been coloured much like those of the adult. The colours of the plumage are precisely those of the specimen last described; the patches of down are smoky brown. There is no trace of white about the head.

Nestling, about $5\frac{1}{2}$ inches long. (Farralone Islands. Mus. Acad. Philad.) All over smoky brown, lighter and more grayish below.

The horn of this bird, always present in the adult, and always indicated, even in the scarcely feathered young, as we have just seen, varies a great deal in the details of its size and shape. It is usually nearly upright, but frequently projects a little obliquely forward. Its average height is between four and five-tenths of an inch, measuring from the level of the culmen at the anterior edge of the root of the horn. The real roots of the horn begin a little above the nasal aperture; the nostril opening just beneath the lower edge. The horn is thus bifurcated, as it were, at the base, and saddled on the base of the upper mandible. The anterior outline is usually straight, or slightly curved, the apex rounded, and the posterior border irregular in outline. It would be impossible to indicate all the variation in detail; scarcely two horns are precisely alike.

The frontal feathers ascend a very little way up the back of the horn in the majority of instances; sometimes, however, they end abruptly at its base. From their foremost point they sweep downwards and backwards along the side of the upper mandible with a gentle regular curve, to the rictal angle, leaving the tomial edges of the upper mandible bare. The chin feathers begin at the accessory symphyseal piece, rise quickly on the sides of the under mandible, and reach its tomial edge in advance of the rictal angle.

The symphyseal piece, which is developed from the skin of the apex of the interramal space, is, when fully formed, as hard as the rest of the bill. Anteriorly it is directly continuous with the mandibular symphysis. On its sides, a groove indicates its line of cohesion with the mandibular rami. The horn, when mature, is perfectly corneous and hard to its extreme base; there being no soft skin even about the nostrils. Its main shaft is hollow; a tube is disclosed when the top is worn off or broken off.

The white feathers on the side of the head differ from those of other Phaleridines (except *S. Suckleyi*) in not being very slender, filamentous and wavy. They are straight, short, acutely pointed, stiffish,

standing discreet from each other, like so many narrow spear-points.

The very large series of this bird examined warrants the belief that the horn is always present, accidents of course not considered; that it begins to be apparent even before the bird is fully fledged, as a slight knob. That, in like manner, the accessory symphyseal piece is always developed; and that its beginning may be detected at a very early age. These facts must be borne in mind in discussing the unusually interesting points connected with *Sagmatorrhina* as compared with the present genus. The opinion relative to the seasonal or sexual character of the horn (page 905, *Birds of N. A.*)* would probably not have been expressed, had the writer enjoyed the opportunity of examining such an extensive series as has been at command in the preparation of the present monograph.

GENUS *SAGMATORRHINA*, *Bonaparte*.

“Bill twice as long as high, upper mandible straight at the base, covered with a very large cere, incurved at the tip; lower mandible ascending immediately beyond the middle, forming an obtuse angle; nostrils linear, marginal.”

The above is a translation of the diagnosis of a genus framed by Bonaparte for the reception of a bird he calls *S. Lathamii*. It apparently differs from *Ceratorhyncha* in the contour of the bill, the presence of a soft cere saddled on the base of the upper mandible in the place of a horn, and, it may be presumed, in the absence of the peculiar accessory corneous element at the mandibular symphysis, as no mention is made of such a character. The type and apparently only known specimen is in the British Museum.

The possession of a soft flat cere in place of an upright horn, and the want of the accessory mandibular piece, are precisely the features which characterize *Cerorhina Suckleyi*, *Cassin*; and in fact are about the only ones by which the latter can satisfactorily be distinguished, specifically, from *C. monocerata*. It therefore seems a procedure of obvious propriety to refer *Suckleyi* to the present genus. At the same time *Suckleyi* can by no possibility be confounded with *Lathamii*; nor is the latter by any means a young *C. monocerata*, as

* Spec. No. 10,698, there enumerated, seems to have called forth the remark above alluded to. This specimen, however, is believed to be the adult of *S. Suckleyi*, of which only the young bird was at that time recognized.

some authors have ventured to hint, and others have boldly assumed.

Sagmatorrhina Lathamii, Bonaparte.—“Largest among its allies; blackish, beneath pallid fuliginous; bill and feet red; cere and webs black. Length 16 inches; bill 2 inches long, 1 inch high, five-eighths wide at the base, three-eighths in the middle; wing $7\frac{1}{2}$ inches; tail $3\frac{1}{2}$; tarsi $1\frac{1}{4}$; longest toe 2 and 3-eighths inches.”

Habitat: “North-west Coast of America.”

“This species is the largest of the subfamily, which is well known to contain the dwarfs of the water birds: it is one-third larger than *Ceratorrhina monocerata*, of which it has precisely the colouring, wanting only (at least in the state we have it) the little white feathers above the eye and at the corners of the mouth. The proportions of the wings, tail, feet and toes are the same; the bill and toes must have been reddish; the cere and membranes black. Like the *Ceratorrhina*, it seems to be confined to the north-western Arctic region of America; and we are led to believe it does not extend to the Siberian shores, from the circumstance of its not having been noticed by Russian naturalists.”

The preceding is Bonaparte's notice of the species, containing all that is known about it by American ornithologists. The writer takes pleasure in acknowledging his indebtedness to Dr. P. L. Sclater, of London, for a figure, drawn from the type specimen in the British Museum. Dr. Sclater says very positively that the bird is a perfectly valid genus and species. Independently of the difference between the cere and the horn, the shape of the bills of *C. monocerata* and *S. Lathamii* are quite diverse. The dimensions of the latter are much larger than those of the former.

Sagmatorrhina Suckleyi (Cass.) Coues.—Habitat: American and Asiatic Coasts of the Pacific. Spec. in Mus. Smiths. Inst.—Young (type of the species, Puget Sound;) adult, breeding plumage (San Diego, Cal.) Adult (Hakodadi, Japan.)

Adult! breeding plumage! (No. 31,908, Mus. Smiths., female, San Diego, Cal. Feb. 3, 1862, J. G. Cooper). “Iris white; bill black and orange; feet pale yellow, black below” (label.) Bill now obscure yellow, the culmen and basal membrane blackish. Feet dull whitish; tarsi behind and feet below blackish; claws black. Colours of the plumage almost precisely as in the adult *monocerata*; white feathers on sides of head exactly the same. Breast

rather deeper grayish ash, the colour extending a little further, and more abruptly defined against the white of the other under parts.

No vestige of a horn at base of upper mandible; this being covered with a soft skin, overlapping the culmen, extending to the nostrils, which open beneath its lower border. That part of the bill occupied by the membrane is depressed below the level of the rest, both on the ridge and sides. The membrane is shrunken and shrivelled in its present state. There appears to have been a slight tumidity, in the fresh state, of this membrane, just on the ridge, which may have elevated it to the level of the rest of the culmen, and which could possibly even have been inadvertently called a "knob" by one who regarded it as the beginning of a horn. No trace of an intercalated piece between the mandibular rami, which have thin, sharp, smooth edges, and come together in a fine point at the symphysis. Bill much smaller, weaker, and particularly less deep at the base than that of *C. monocerata*; but not much shorter, nor comparatively even so much compressed as in the latter bird. Culmen regularly decurved from base to tip; the latter moderately overhanging; rictus at first nearly straight, then gently declinate; gonys nearly straight, slightly concave; outline of mandibular rami about straight.

Decidedly smaller than *monocerata*; the wing comparatively longer. Length about 14·00; "extent 25·50" (label); wing 7·25; tarsus 1·10; middle toe and claw 1·90, outer do. 1·80, inner do. 1·45; bill—chord of culmen 1·30, of which the membranous part is ·30; rictus 1·85; gonys ·75; depth of bill at base ·60; its width at same point ·45.

Young: "Membrane at base of upper mandible grayish dusky black; middle of both mandibles dingy orange, their tips dusky; iris pale hazel; under surface of the webs of the feet, and the posterior aspect of the tarsi dusky black; upper surface of the toes bluish white, darker about the articulations; nails black." (Suckley, l. c.).

Much smaller than the adult; length "about 12·50; extent 24·00" (Suckley, l. c.): wing 6·50; tarsi 1·00; tail 2·00; tarsi 1·00; bill along culmen 1·20, of which the membranous portion is ·30; along rictus 1·60; along gonys ·60; its depth at base ·40. The bill is small and slender; its general shape calls to mind the bill of a young gull of one of the smaller species. The several outlines, particularly that of the culmen, are straighter than in the adult; the tip is less decurved. The bill is much longer, relatively and absolutely, than that of the corresponding age of *monocerata*; it is comparatively more slender.

There is no trace of a knob;* the membrane has precisely the same characteristics as that of the adult bird above described. There is no trace of an accessory piece between the rami.

The bird above described was first indicated as a distinct species by Mr. Cassin in 1858; that gentleman founding his specific characters mainly upon the small size, somewhat darker colours, and much smaller, slender bill, as compared with *monocerata*. The species has always been looked upon with considerable mistrust, and very generally regarded as only a young *monocerata*. At the time of the introduction of *Suckleyi*, *C. monocerata* was not known in all its ages and stages of plumage, as it is at present. The horn which characterizes it was believed to be frequently wanting, particularly in the young bird. The accessory symphyseal piece had not received attention. These facts, together with the almost perfect identity in plumage of the two birds, very naturally led to the suspicion above mentioned; seemingly borne out, too, by the fact that the type of *Suckleyi* was a very young bird, the adult of which was unknown, or at least unrecognized. But it has been shown in the preceding article that indications both of the horn and of the accessory interramal element appear in *monocerata* even before it is fully feathered, and that these two distinguishing features are preserved in all ages, at all seasons, with both sexes. The discovery of *Suckleyi* in perfectly adult breeding plumage settles the question of its identity with *monocerata*. Specimen No. 31,908, above described, has no trace of a horn or accessory symphyseal piece; and is smaller, and otherwise conspicuously different from *monocerata*, though of almost precisely similar colours of plumage.

There is something highly interesting, very singular, and, with our present information upon the subject, totally inexplicable, in the fact that the plumage of the two birds is so nearly identical as not to be satisfactorily distinguished in any particular; while the bills differ in such radical characteristics. The suspicion comes unbidden, that the whole truth in the matter of *C. monocerata*, and *S. Suckleyi*—and *S. Lathamii*, too—remains to be developed; while it is certain, at the same time, that nothing but the truth appears upon these pages.

* Dr. Suckley (*l. c.*), speaking of this specimen, uses the word "knob" in connection with it. His expression is to be taken as indicating merely the turgidity of the soft membrane during the life of the bird; which raises the membrane to or above the level of the rest of the culmen. The membrane, being very soft, shrinks and shrivels in drying, and the prominence disappears.

In the reference of this species to the genus *Sagmatorrhina*, the writer is guided simply by Bonaparte's diagnosis, and by the figure of the head of *S. Lathamii*, kindly furnished by Dr. Sclater. The dimensions of *S. Lathamii* and the form of the bird are sufficient to distinguish *S. Suckleyi* from it.

(To be continued.)

The Protection of Birds. By Captain H. W. FEILDEN.

IF you do not think that I am trespassing beyond the limits of a contributor to a periodical of Natural History, I should much like to bring to your notice and to the notice of the readers of your valuable journal my views as to the great protection likely to be afforded to the avi-fauna of Great Britain, from the proposed tax of the Right Hon. Robert Lowe on the carrying of fire-arms. I am not going to discuss the imposition of a one-pound license on fire-arms from any other stand-point but that of a lover of bird-life, who derives true enjoyment from out-of-doors observations of animal life: writing from this basis, I feel sure that I may rely on the sympathies of your readers.

It is evident to those who have made field Ornithology a pursuit for any considerable time, that many of our native species of birds are becoming yearly scarcer and scarcer. This is owing partly to the increase of population, and its attendant results, but far more I contend to the great increase of idle gunners, who for the mere pleasure of discharging their gun or for the desire of petty profit, have been in the habit of indiscriminately slaughtering, in and out of the breeding-season, our feathered favourites.

The Sea-birds Preservation Act of last Session was a wise and kind measure in the right direction, and I think the proposed tax on fire-arms is another step forward, and will lead to the happiest results. That it will meet with considerable opposition from many quarters I have no doubt, and I take the following as an example from a leading article of the 'Times' of the 12th of April:—"While the argument that the tax may check poaching in the bud may be sufficiently acceptable in the House of Commons, its practical consequences that no schoolboy can have a day's shooting at Christmas without paying a pound for a license is likely to excite a storm of unpopularity." The *unfortunate* school-boy of the 'Times,' who is now to be ruthlessly deprived of his innocent amusements at Christmas time,

is in my estimation only a stalking-horse put forward to cover and protect the acts and delinquencies of that class of pot-hunters who swarm throughout the country, and are the bringers to market of the bundles of song-birds that we see every day suspended from the shops of the small game-dealers in our towns. To these heartless wretches a nightingale would be no more sacred than a starling. I would therefore suggest that all lovers of Ornithology should unite in protesting against this mock sympathy for the imaginary school-boy, a sympathy which is sure to be developed by such newspaper articles as I have referred to, and aid by discussion and argument the carrying out of this beneficial tax on fire-arms.

Mr. Robert Gray, the Secretary of the Natural History Society of Glasgow, in his concluding remarks on the "Birds of Ayrshire and Wigtownshire," published in the Proceedings of that Society for 1869, writes ably and forcibly on the subject of the preservation of our birds:—"We cannot withhold the expression of a belief, in which we trust that most persons interested in ornithological pursuits will readily join, that the time has now arrived when the protection of various classes of birds has become a paramount duty. We have only to consider the vast diminution of species that has taken place during the last thirty years, in order to learn the mischief that has resulted from one cause alone—*viz.* the over-zealous destruction of creatures that are supposed to be enemies to game. * * * We still cling to the hope that similar enactments (referring to the Act for the Preservation of Sea-birds) may yet be framed for the protection of land birds, from the soaring eagle to the timid thrush; and until this takes place, proprietors would earn the gratitude of all true naturalists by resolving to discontinue the deadly practice of exterminating what their keepers have branded as vermin."

Still referring to Mr. Robert Gray's admirable paper, I find that Section VI. of the Laws of the State of New York provides for the protection of a large number of land birds, including the eagle, fish hawk, night hawk, whip-poor-will, swallow, oriole, woodpecker, bobolink, *or any other harmless bird*. The penalty for violating the provisions of this Act is stated at fifty dollars for each offence. Thus we see that in the Republican States of the New World the protection of birds is more cared for by the statute book than in England.

The deductions which I wish to make from these remarks will not I think be gainsaid by your readers, namely, that the diminution of many of our species of birds, and the destruction and extermination

of others, is due to two principal causes—"the over-zealous destruction of creatures that are supposed to be enemies to game," and the merciless slaughter of our birds by the hedge-row pot-hunters.

A third cause is one that springs directly from a wise and proper origin, but one which I am afraid is often carried to an extreme—a desire to add to our ornithological knowledge by procuring specimens for our private collections. Almost any number of your interesting and valuable magazine is largely filled up by a record of "rare captures," which in too many cases amounts to the total destruction of the flocks of rare visitors who may have been unfortunate enough to land on the shores of Great Britain. What I want to ask is this. Can we not do something to stem the tide of destruction? Would it be feasible or beneficial to endeavour to form throughout the country a Society for the protection of birds in general?

I think the Sea-birds Preservation Act will sufficiently protect those species if the law is carried out in its integrity, and I am looking forward with great interest for this season's report, whether the sea fowl have increased at Flamborough and other English nurseries of rock birds. I trust that contributors to the 'Zoologist' will pay attention to this, and record the result of their observations.

I think that Mr. Lowe's proposed tax on fire-arms will in a great measure obliterate the worthless senseless destroyers of our song-birds and smaller land birds. There will still be left to contend with a large class of persons who have the power to destroy and exterminate species, but, I am happy to say, a class amenable to reason and open to conviction, and who doubtless, as the subject is more fully ventilated, as it soon must be, will lend their powerful support to the protection of birds—I mean the proprietors of Great Britain. There are several proprietors of my acquaintance who lend a willing and kindly hand to the good cause of the protection of bird-life, and as a growing interest in this matter appears to be springing up, I look forward to the time when this feeling will be paramount throughout the length and breadth of the land. I am afraid that my love for the subject on which I am writing may lead me to occupy too much of your space, and to impose on the patience of your readers, but if the remarks now penned by me in one single instance restricts the useless destruction of a bird, they will not have been written in vain.

H. W. FEILDEN.

Chester Castle, April 14, 1870.

Australian Frugivorous Bats, or "Flying Foxes."

SUDDENLY, in 1858, an unusual number of flying foxes was observed one day to be hanging on some trees in the Botanical Gardens in Sydney, New South Wales. Such animals had been but rarely seen in the neighbourhood, though since that year they have often appeared in goodly numbers. They are thickly congregated in some places up the country, especially in the warmer regions towards the north, and it is perhaps only during the prevalence of severe droughts that they migrate towards Sydney. At such periods they find all the wild fruit up country dried up, and burned both by the sun and by bush-fires; whereas near Sydney they meet with many orchards and gardens where, thanks to human aid, luscious pears and great fat peaches thrive, drought or no drought.

There are several species of these bats; but that most common about Sydney is the *Pteropus Edwardsii*. Its wings measure over three feet, from tip to tip, and it is clothed in a dusky thick fur, with a reddish ring around the throat. It has a curiously benign expression of countenance, though masking a savage disposition, especially when wounded.

Like most of the aboriginal denizens of Australia, these foxes are nocturnal in their habits. Owing to the great area of the extended wings, even the darkness of night does not render it a difficult matter to hit them. They are brought to the ground with much more ease than a bird would be. Flapping its huge wings as it lies there on its back, in the dark, such game completely puzzles any dog; and should one chance to get its nose in, he is probably saluted by a severe nip from the beast's teeth, while at the same moment he is startled by sharp scratches on his back and neck from the formidable hooks on the "shoulders" of the wings. If no dog be near, and a sportsman has only wounded one, he lies flapping for a time, until, recovering his presence of mind, he makes off, with a shuffling, undignified waddle, slow but sure, to the nearest tree, which he then ascends somewhat rapidly.

These huge fox-bats do not appear to be able to take flight off the ground, but are obliged to commence their aërial tour by dropping from some branch, in the same way that an albatross starts by throwing himself off a cliff. They are blessed with good appetites, and, though most partial to fruit, they will even condescend to nibble the

flower of the gum tree, &c. They are most clumsy eaters, destroying far more fruit than they "put away." It is amusing to hear the fruit growers persist in declaring that the foxes do this wilfully, from malice prepense, from the evilness of their hearts, whereas to us it appears to be rather the result of laziness than of diabolical mischief. Certain it is that the morning after they have visited an orchard large quantities of nibbled fruit are found all over the ground. Hanging by his hind legs, the flying fox takes hold of a pear or a peach with his claws, and as long as he can comfortably reach the fruit, so long does he munch away, through stalk and all, when of course the pear at once proves the law of gravitation to any Newton chancing to be near, and the bat lazily crawls off to another. It is possible, though not proved, that the bat on losing his dainty morsel makes use of bat-like naughty language; at all events, he tries to solace himself by swinging or crawling off to the next fruit within reach, of which the better part is again soon on the ground. They have been known to carry fruit to a great distance in its whole state, besides the pulp which they concoct in an internal receptacle and give on their return home to their wives and children.

During the day the Pteropi sleep suspended by their hind legs from tall trees. In India they usually select some species of *Ficus*, and may be seen covering the branches of several consecutive trees, which are soon stripped of all their leaves. The effect is very curious when the bats are in such numbers; the trees from a distance look as if they were clothed in black foliage, large hanging dark leaves pendant along every branch, but which, on a nearer approach, prove to be these sleeping bats. They are fond of home, keeping steadily to the same trees for years, if not hunted away. It is interesting to watch them waking up in the evening. Towards sundown, one or two of them begin to stir; one wing begins slowly and by degrees to unfold itself; then a second wing is gradually extended. A chattering, squeaking, murmuring waking-up becomes general; one by one they commence crawling about, then fight a bit to raise their dormant faculties, and after trying their flying powers round and round the trees, at last, fully awake and alive to the duties of the night, they make off to their various feeding-grounds.

All these bats hang to the branches by the claws of their hind legs, and they possess another useful member in the hook, which appears to be attached to the shoulder of the wing, but which really answers to our thumb, and which is their great stay when climbing or feeding.

So tightly do they hang by the claws that they may even be shot dead and yet not drop, obliging their persecutors to climb the tree to gain possession of the dead body. They have a peculiar odour, in spite of which the blacks eat them, and declare them to be savoury and palatable. Dr. Leichardt and his party, when crossing the continent of Australia, found them good eating. But was this possibly a case of Hobson's choice?

There is a little bird, called by the colonists the "silver-eye," which likewise shows much taste for fruit, doing a deal of damage according to its smaller powers, but nothing when compared to that occasioned by the ravages of this huge bat.—*George Smyth Powell; New South Wales, February, 1869.—From the 'Field.'*

The 'Singleton Times' also gives the following account of a recent exterminating expedition to the haunt of the flying foxes at Black's Mountain:—

After hobbling our horses with a stirrup-leather on some good grass on the top of the mountain, we proceeded down its rather precipitous sides, and soon our eyes were as much astonished as they were gladdened by the sight of many acres of trees literally black with foxes. More than half of our company commenced operations; but after about a quarter of an hour's tremendous slaughter we had the mortification to see that nearly every one of the flying foxes was on the wing, and a wonderful sight it was. The bush was about a mile and a half long, and the whole length and breadth of it was nothing but a vast cloud of foxes, wheeling and hobbling, and "bobbing round" and round. At the lowest calculation there could not have been less than fifty thousand, and I believe that if that number were doubled it would be nearer the truth. Our party had by this time got pretty well spread all over the ground, and for some time, wherever two or three of the foxes tried to fasten on a tree, they quickly came to grief, and some of our party brought them down on the wing. This exciting state of affairs lasted until a little past noon, when the call sounded of "Come to camp." The call was quickly complied with, and ample justice was done to the eatables provided. After half an hour's rest, away we started, and now "the fun grew fast and furious." The foxes were completely tired with their unusual exertions of the morning, and would only fly from tree to tree, and in many instances from one side of the tree to the other; and all that the sportsmen had to do was to load and fire, which they did as fast as their guns would allow them,

many of them having to apply wet handkerchiefs to their guns, which they rubbed to keep cool, being afraid they would blow the powder off while they were loading; but it would be impossible to give you any idea of the shooting done for the next few hours, or of the wild enthusiasm which was felt by nearly all the party. But, like every other enjoyment and excitement, even that must come to an end; and shortly before five o'clock, knowing the distance we had to return home, and the darkness of the night, with one accord we turned homeward.

Change of Colour in Stoats this Winter.—The number of stoats which have this winter assumed more or less the ermine clothing on the hill in this place is very remarkable. My under gardener has seen several thus changed, and the woodmen at work there state that they have not seen one wholly in its brown garb. One which was brought to me this morning is almost wholly white, and another, now in the hands of the stuffer, has no trace of its summer colour. No person here has ever seen so general a change in the species before. Our latitude is about 51°.—*Thomas Bell; The Wakes, Selborne, March 19, 1870.*—'Field.'

Supposed Occurrence of the American Mottled Owl at Cobham, Kent.—I think I can hear a groan of suspicion from experienced ornithologists when they read the bold statement that I have seen this rare American owl in England. "Where is the specimen?" they say, "seeing is believing." Well, I have not got the specimen, but I had a most clear view of the bird, and I will endeavour to describe it to the readers of the 'Zoologist.' On the 11th of April I was examining a large yew tree that stands in a thick wood here, having an idea that there might be an owl of some sort there. To my surprise I perceived, about six feet above my head, a beautiful little owl, which struck me as being a nondescript. The general colour was reddish brown, beautifully variegated; on the wings were several large and conspicuous white spots (characters of *Strix Asio* and no other English owl); the breast was dotted with longitudinal markings; the feathers of the face were much redder than those of the breast; and, to crown all, it had two small stumpy tufts—I can hardly call them ears. After it had surveyed me for a minute or two, with a ludicrous expression of dismay, it flew rapidly off to some larches, where I found it again perched up against a trunk, and had a still better view. I forgot to say that in size it seemed a little larger than a partridge. By careful examination of stuffed birds of known length, and especially owls, I conclude that its length was about eleven inches. What else could this be but *Strix Asio*? It was too big and too red for a *Scops*, too small and shorteared for a longeared owl. Besides, neither of these species possesses the conspicuous white markings on the wing. I submit the case confidently to the readers of the 'Zoologist.'—*Clifton; Cobham Hall, Gravesend, April 12, 1870.*

Lesser Gray Shrike in Norfolk.—With reference to the Rev. M. A. Mathew's statement in the last number of the 'Zoologist' (S. S. 2060) that he received an example of *Lanius minor*, recently obtained in the neighbourhood of Yarmouth, I may add that, from inquiries made on the spot, I feel justified in adding this species to the Norfolk list, through the occurrence of Mr. Mathew's specimen. The bird in question appears to have been shot in the spring of 1869 (the exact date I cannot now ascertain), in a garden at the north end of the town, and was purchased and mounted by Mr. Carter, a local birdstuffer, who subsequently sold it to Mr. Mathew. It is quite evident, however, from the price asked for it, that its specific rarity was unknown until its distinctive markings were recognized by its present owner.—*H. Stevenson; Norwich, March 23, 1870.*

Buff-coloured Redwing.—Buff varieties of the blackbird and thrush are not uncommon, but I think a buff redwing is rather a novelty. A bird of this kind was lately killed near Plymouth, showing no trace of the usual markings, save the red patch on the side, which is of a much paler shade, though still very conspicuous.—*John Gatcombe; Stonehouse, Plymouth, April 17, 1870.*

Golden Oriole at Scilly.—I have to communicate to you the appearance of the golden oriole in large numbers at Trevethoe, about seven miles from Penzance towards the north coast. Mr. H. Manners, jun., was good enough to bring for my inspection, this morning, two adult specimens, a male and female, in the finest possible plumage. He said he shot them out of a flock of eight last evening, and that they were distributed over a plantation where a considerable quantity of high gorse prevails, in large numbers; he says at least forty. This is a rather remarkable immigration of this fine and rare British species.—*E. H. Rodd; April 22, 1870.*

PS.—As I fully expected, after the immigration of orioles in this district reported to you yesterday, I received by the Scilly Packet to-day news of their appearance on the islands. One was picked up dead, and four others seen in bright plumage at "Trescoe" Island, another, apparently a female, on "Sampson." I observe that the female is of rather larger dimensions than the male.—*Id.; April 23, 1870.*

Black Redstart.—During the past winter I have met with six specimens of the black redstart on our coast, five of which were in the plain gray plumage, but the sixth was a magnificent old male, with full black breast and pure white patch on the wing. This last bird I mentioned having seen in a previous notice, but since then it has fallen to my gun, and is now stuffed and in my possession.—*John Gatcombe.*

Correction of Errors.—In my note on *Ruticilla tithys* and *R. Carii* (S. S. 2100, line 10), my meaning is quite altered by the omission of "and" before "that," &c.: it should read, "I think, contrary to Dr. Bree, and that it would make a very great difference, *R. Carii* and *R. tithys* breeding in distinct localities, particularly in the same place and at different levels." Also, in my note on the ruddy sheldrake near Tralee (S. S. 2105), read "bogs" and "bog" instead of "bays" and "bay" throughout.—*H. Blake-Knox.*

Wheatear on the 5th of March.—I observed several specimens of the wheatear on Durdham Down, near this place, on the 5th of March. As this species does not usually make its appearance in this locality before the end of March or beginning of April, you may consider its early arrival, especially in the present rather backward season, worthy of record.—*Marcus S. C. Rickards; Clifton, March 24, 1870.*

Bird's Nest in Solid Wood.—A curious discovery has recently been made at Chislehurst, in Kent:—"A large elm tree in the church-yard was cut down, and a bird's nest with seven eggs was found completely embedded, and having at least nine inches of solid wood grown over it, without any trace of an outlet. The eggs are as perfect as when first laid, and are supposed to be those of the great titmouse (*Parus major*).—*J. E. Anderson; Henlade, Taunton, April 22, 1870.*

Shore Lark near Newhaven.—On Tuesday, March 1st, a fine specimen of the shore lark was taken at night in a lark-net, on the Hoddern Farm, near Newhaven.—*T. J. Monk; Mountfield House, Lewes.*

Shore Lark at Southwold and Redthroated Diver in London.—Mr. Cooper, of Radnor Street, St. Luke's, showed me to-day four shore larks, which had been shot at Southwold, near Aldborough, Suffolk, at the beginning of March. He had also set up a redthroated diver, which had settled during the severe weather in February on the reservoir of the New River Company, Clerkenwell. The bird lived on the water for some days. On examination after death the bill was found to have been injured by shot, and turned up to such a degree as to completely prevent the bird feeding, thus causing death by starvation.—*A. H. Smee; April 18, 1870.*

Snow Bunting on the Severn Bank.—I yesterday shot two specimens of the snow bunting on the bank of the river Severn, between Avonsmouth and the New Passage. They were associating with a flock of larks, and were very wild and difficult of approach. Both specimens proved on dissection to be females, and are in good plumage.—*Marcus S. C. Rickards.*

Tree Sparrows near Oxford.—Since I last wrote you, the little tree sparrows (*Passer montanus*) have arrived in quantities, and they are daily frequenting our withy pollards, in which they appear to make their homes. I am much interested in their movements, and am watching them closely. Are they supposed to be migratory? I see they are mentioned in the 'Dictionary' as being local, confining themselves to Lancashire, Yorkshire and Lincolnshire: they are now very plentiful here.—*Edward Sweetapple; Eynsham Paper Works, near Oxford, April 9, 1870.*

[I have never regarded *Passer montanus* as migratory: it is resident throughout the year at Leominster.—*E. N.*]

Immigration of Rooks and Starlings.—During the past week the wind has been frequently shifting from east to west, and on Thursday, the wind being N.W., immense numbers of rooks and starlings were almost constantly arriving from over the sea under similar circumstances as occurs in October. I have never seen such flights at this season of the year before, and think it so exceptional as to deserve to be noted.—*N. Fenwick Hele; Aldeburgh, March 20, 1870—'Field.'*

Note on the Migration of Swallows.—My father, who is at present travelling in Italy, writes to me that a few swallows made their appearance at Naples on the 28th of March, but none were seen at Florence before the 31st of March: by the 10th of April, however, swallows were abundant. In this country (Carshalton, Surrey) the first swallows were seen on Sunday, April 10th, one day later than last year. On that day only four were seen, and up to this present time (April 19th) they are very few in number, and as yet neither the sand nor common house martin has appeared. A correspondent writes in the 'Field' of April 9th that swallows were seen on the Garonne on the 29th of March. My object in recording these isolated dates of the first appearance of the swallow is the hope that I may induce ornithologists in this

and other counties traversed in their migrations to carefully watch for and record the date of the first appearance of these birds, so that some idea may be obtained of the cause which influences them to undertake their migration north, and also the distance traversed per day when so migrating. I have an idea that we shall find that the distance traversed is very limited and much smaller than is popularly believed. From the above dates the swallow appears to fly about fifty miles per day, in a northerly direction.—*A. H. Smee.*

Mr. Hamond's Bustards.—Allow me to correct an error in the last number of the 'Zoologist' (S. S. 2102) respecting the late Rev. Robert Hamond's case of bustards. These birds, forming part of a fine collection, are now in the possession of a relative of the late Miss Hamond, of Swaffham,—Mr. Robert Elwes, of Caugham House, near Lynn, and were never, as Mr. William Dugmore supposes, in the possession of the late Mr. Anthony Hamond, of Westacre. I have recently seen this fine case of bustards at Caugham House, and believe that Mr. Moor's account of them is correct; but as I expect shortly to have an interview with an old gamekeeper in this county, formerly in the service of the Rev. Robert Hamond, and who was with him on most occasions when he went after bustards or other specimens for his collection, I shall probably be able to authenticate or add fresh facts to Mr. Moor's statement. The collection now at Westacre belonged to the late Rev. H. Dugmore, of Beachamwell, Norfolk.—*H. Stevenson.*

White Curlew and White Fieldfare.—About a month ago a pure white curlew was shot near Carrigart, in county Donegal, and sent to me for stuffing. This bird had been seen in the same locality for two years by the man who shot it; and is now in the possession of John Bond, Esq., of the Collow, near Derry. Not long since, a gentleman told me he had shot a pure white fieldfare not far from this city.—*Thomas E. Davies; 24, Strand Road, Derry.—'Field.'*

Woodcock on the 19th of March.—I noticed in the 'Field' newspaper that a gentleman had seen a woodcock on the 8th of March, and he considered it very late for them. On Saturday, the 19th, I shot a remarkably fine one, but I omitted to have it weighed. It was in splendid plumage, and very light coloured.—*H. P. Brandreth; Standish Rectory, April 6, 1870.*

Jack Snipe in a Norwood Garden.—Last Monday morning (April 4th) I flushed one of these birds in my garden. It was sitting under a fence, and rose at the distance of about two yards, so that I had a good opportunity of distinguishing the species. I live on the crest of Beulah Hill, Upper Norwood, which is about the last place in which one would expect to meet with such a bird.—*Charles Horne.*

Garganey or Summer Teal at the Lands' End.—The garganeys visits us sometimes, but rarely, in the early spring, on their journey to the eastern counties, where they breed. Three specimens, in adult and beautiful plumage, were obtained on the 30th of March, and sent for preservation by Mr. J. Symons, jun., from the Lands' End.—*Edward Hearle Rodd; Penzance, April 9, 1870.*

Garganey near Lewes.—On Friday, March 25th, a garganey teal was shot in the marshes near Lewes: this proved to be an immature male, and when shot was in company with six others of the same species.—*T. J. Monk.*

Redbreasted Merganser in Adult Plumage in Winter.—I saw a full-plumaged merganser, which was killed in the middle of the late winter in this neighbourhood. All the specimens I have hitherto seen here (and they have occurred in the winter

months), have been in the sombre garb of the "dun diver" figures. I have regarded this state of plumage as seasonal, as well as indicative of birds of the year, but the adult ornamental plumage of the specimen under notice induces me to suggest that in general the less ornamental livery is the winter dress, very old birds may retain the full plumage perennially.—*Edward Hearle Rodd.*

Redbreasted Merganser near Oxford.—While looking for wild ducks during the late frost, I was lucky enough to shoot a fine male specimen of the redbreasted merganser. I found it near Oxford, between Sandford and Nuneham. Are they often found so far inland?—*G. O. Pardoe; Univ. Coll. Oxon.*—'Field,' March 5, 1870.

Rednecked Grebe and White's Thrush in Yorkshire.—I beg to communicate the facts of the occurrence in this district, first, of the rednecked grebe (*Podiceps rubricollis*), which was obtained about a month since on the upper part of the Cleveland Esk; and, second, of a bird which I have no doubt was White's thrush (*Turdus Whitei*). My attention was drawn to the last-named yesterday (Sunday) morning. It was on the grass-plot, not ten yards distant from my study-window, and I was enabled almost immediately to examine it thoroughly by the aid of a very excellent double field-glass. I suppose it was thus under observation from two to three minutes. Again, in the afternoon, from the same window, I had a like opportunity of inspection, and as the bird hopped across the grass it came under observation from another window, with nearly equal advantage to the observer. It remained in sight for, I should say, four or five minutes this second time. I had no doubt from the moment I caught sight of it that it was not a common bird, and directly I had it in the field of the glass I recognized the peculiar plumage of the *Turdus Whitei*. I see Eyton, in his 'Rarer British Birds,' speaks of the flight of Lord Malmesbury's bird as "undulating, similar to that of a misseltoe thrush." The remark of my eldest son, who first noticed the bird on the grass-plot, touching the flight of yesterday's bird, was, that it was "just like that of the missel thrush;" the spontaneous remark of another observer (quite un-ornithological), who stood by my side at the time, being, as regards its size, that it was so much larger than the common thrush, specimens of which are to be seen on the same grass at almost any time for the trouble of looking out of the window.—*J. C. Atkinson; Danby, in Cleveland.*—'Field.'

Horned Grebe in Cornwall.—Several specimens of the horned grebe (*Podiceps cornutus*) came to hand during the late hard winter, from different localities in West Cornwall. All the specimens that I saw were without elongated feathers or fringes, and were, I presume, either in the first year or in winter plumage.—*Edward H. Rodd.*

Grebes on the Coast of Devon.—Examples of the whole family of British grebes have been obtained on our immediate coast during the past winter. In a previous notice I mentioned the great crested and Slavonian grebes, but since then specimens of the rednecked, eared and little grebes have come under my inspection, all killed in the neighbourhood of Plymouth. Many years ago large flocks of grebes, composed of different kinds (but chiefly of the great crested) frequented the shores of Plymouth Sound during a long continuance of severe easterly gales and frost, but since that time comparatively few have made their appearance until the late severe season. At the time they were so plentiful (mentioned above) my brother and I alone killed more than twenty specimens within a month, the skins of which we kept to have made into tippets or muffs; but not knowing how to divest them of the thick layers of fat, they

became so rancid that we were ultimately obliged to throw them away.—*John Gatcombe.*

Bridled Guillemot and Little Auk.—The bridled guillemot and little auk have been lately killed in the vicinity of Plymouth.—*Id.*

Puffins in Mackerel Nets.—I have just received a specimen of the puffin captured at sea in a mackerel drift-net. This mode of capture of sea-birds is not uncommon. I have myself frequently taken cormorants and other divers in trammels (which are fixed bottom-fishing-nets), and I have once or twice mentioned it either in your pages or elsewhere, but the fact is one of the common ones not generally known, and I therefore record it.—*Thomas Cornish; Penzance, April 12, 1870.*

Hoopoe in Kent.—A hoopoe was shot on the 21st inst., at Lees Court, near Faversham; it was in fine plumage, but rather a small specimen.—*John Hunter; Ealing, April 23, 1870.*

Little Gulls, &c., near Great Yarmouth.—During the month of February, Mr. Carter has had the following rare specimens in for preservation, *viz.*, redbreasted merganser, shot on Breydon on the 12th; blackthroated diver, female, shot on Breydon on the 13th; smew, shot on Breydon on the 19th, and four little gulls. I may also mention that Mr. Watson has had brought him about twenty of the little gulls, some very old birds amongst them, all shot in this immediate locality.—*John G. Overend; Great Yarmouth, March 2, 1870.*—‘*Field*,’ *March 15, 1870.*

Little Gull, &c., near Marlborough.—A specimen of the little gull was picked up on Rockley Downs, near this place, on the 14th of February; one of the scaup duck was shot at Mildenhall, on the 15th, and a pintail also at Mildenhall, on the 26th.—*T. A. Preston; Marlborough, April 1, 1870.*

Blackheaded Gulls in Penzance.—Five or six blackheaded gulls, in full summer plumage, have been disporting themselves off our pier-head here to-day. They seemed perfectly aware that they were quite safe. They had probably been looking up the Act of Parliament and consulting an almanac before they came in.—*Thomas Cornish.*

Arrival of Summer Birds in the Neighbourhood of Plymouth.—Wheatear, March 5th; garganey, March 25th; chiffchaff, April 4th; swallow, April 11th; willow wren, April 12th.—*John Gatcombe.*

Notes from East Yorkshire.—January 15, 1870. An adult male peregrine falcon shot at Flamborough.

February 1. Saw a fine male smew: it rose from one of the drains on our common.

2. An adult female goosander shot on the river.

11. A male chaffinch shot near Cherry Burton, almost white.

12. Whilst up the river looking for wild-fowl I saw three goosanders flying about, evidently intent on pitching near a bend in the river: this I saw by their “stooping” in their flight, and always near the same place; at last they pitched, and I crept cautiously to them, and with such good result as to kill the male and a splendid female by a right and left shot: both adult birds, the salmon-colour on the breast of the female being richer than I ever saw, surpassing even that on the male. About a dozen immature goosanders of both sexes have been shot on the river this month. An adult male and female goldeneye shot on the river.

16. Rednecked grebe, female.

17. Smew, adult male, shot on the river.

20. Two Slavonian grebes, female, shot by a bargeman.

21. Common buzzard, female, shot near Cocklington.

March 8. A Slavonian grebe, adult male, shot by myself: the stomach of this bird was crammed with a mass of feathers, fish-bones, &c., much resembling the casting of an owl. Although this grebe appears to have occurred almost generally over England, I have not heard of a single specimen of the eared grebe having been procured. If the birds inhabit the same countries, how is this?

20. Two male garganey teals shot on the river.

27. A female blackbird sent me: it had a white patch of feathers on the back and neck, and a few on various parts. Female varieties are not nearly so common as those of the male.

31. A male and female garganey teal shot.

April 1. I picked up a fine bean goose on our common to-day: it had been wounded the evening before. Saw a woodcock this day.

2. A male garganey teal shot on the river.

3. A ruff shot on the river-side: it had moulted some dark feathers on the back, and had a large white collar on the neck, but the feathers were only short. Stone plovers have arrived on their breeding-grounds.

5. Two green woodpeckers shot near Holme.

8. Found a longeared owl sitting on an addled egg: it had evidently been sat on a long time.

15. A pair of shovellers, male and female, shot on the river.

16. A redthroated diver, shot on the Humber near Spurn, had not completed its red throat.—*Frederick Boyes; Beverley, April 20, 1870.*

Rare Birds at Barnstaple.—The following birds have been obtained at Barnstaple since my last communication:—Another rednecked grebe, shot on the Taw towards the end of February; a pair of garganeys, male and female, shot on the Taw, close to Barnstaple Bridge, about the 20th of March; and a pair of shovellers, shot on the Taw, about the same date. A fine great gray shrike was seen close to the town towards the end of last month.—*M. A. Mathew; Barnstaple, April 8, 1870.*

Greater Forked-beard at the Land's End.—A specimen of the greater forked-beard, or hake's dame, was taken yesterday in a mullet-sean at the Land's End. There is nothing remarkable about the fish, which was about eighteen inches long. The last (indeed the only other) specimen I ever saw was taken in Mount's Bay in 1864.—*Thomas Cornish; Penzance, April 9, 1870.*

Large Salmon in the Tame.—Yesterday a salmon two feet nine inches long, and weighing eight pounds, was taken in the eel trap, at the Castle Mill, on the River Tame, just by the spot where it is joined by the Anker. Unfortunately it had been eaten by the captor some two hours before I heard of it, and I could not therefore see it in the flesh, but I understood the mill-owner to say that it had on its lower lip the horn with which these fish root up the gravel before spawning. It is now many years since a salmon was taken so high up the river as this.—*Egbert Hamel; Tamworth, April 6, 1870.*

Something about the Viper.—On the 7th of April, when in Maidstone Wood, in the parish of Egg Buckland, about four miles from Plymouth, I found to my surprise a young viper at rest on some dead leaves, &c.: I should not have supposed young ones would have been produced so early in the year as this. I killed it, and, as I had my botanical vasculum with me, brought home the body in it, and on measuring it found it only just exceeded seven inches in length. The habits of some of our British Reptilia seem so little known, notwithstanding the list is so meagre, and, as regards the viper, so much has been said about the retreating of its young when alarmed through the dam's mouth into her stomach, that the simple fact of my finding a young one at the date given seems to me worthy of notice, especially as the length of this little creature, albeit it was at large in the world, was only that of the shortest of a young brood extracted by Gilbert White from the body of an old one, killed in the month of August. I quote his account of the circumstance:—"On August 4th, 1775, we surprised a large viper, which seemed very heavy and bloated, as it lay in the grass, basking in the sun. When we came to cut it up, we found that the abdomen was crowded with young, fifteen in number; the shortest of which measured full seven inches, and were about the size of full-grown earth-worms. This little fry issued into the world with the true viper spirit about them, showing great alertness as soon as disengaged from the belly of the dam: they twisted and wriggled about and set themselves up, and gaped very wide, when touched with a stick, showing manifest tokens of menace and defiance, though as yet they had no manner of fangs that we could find, even with the help of our glasses. There was little room to suppose that this brood had ever been in the air before, and that they were taken in for refuge at the mouth of the dam, when she perceived that danger was approaching; because then, probably, we should have found them somewhere in the neck, and not in the abdomen." (Nat. Hist. Selborne, Let. lxxiii). In reference to the above, Jesse, in his edition of White's Selborne, adds the following note:—"The very circumstance which Mr. White mentions, of the young vipers being fully seven inches in length, proves that they had been in the open air before, as they have been known to leave the stomach of the dam when they have been from one to two inches in length. From various facts communicated to me by viper-catchers and others, I can have no doubt but that the young vipers, when alarmed, take refuge in the inside of the parent, who extends her mouth for the purpose." I will now take my leave of the viper by respectfully proposing three queries to the readers of the 'Zoologist.' At what time of the year are young vipers generally produced? How many broods are there in a season? What is the average size of the young when brought forth?—*T. R. Archer Briggs; 4, Portland Villas, Plymouth, April 19, 1870.*

Proceedings of the Entomological Society.

March 7, 1870.—F. P. PASCOE, Esq., V.-P., in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—
'Berliner Entomologische Zeitschrift,' 1869, parts 3, 4; presented by the

Entomological Society of Berlin. 'Journal of the Royal Agricultural Society,' series 2, vol. vi. part 1; by the Society. 'Natural History of the Tineina,' vol. xi.; by H. T. Stainton, Esq.

Election of Members.

The Rev. Richard P. Murray, of Mount Murray, Isle of Man, was elected a Member. M. J. C. Puls, of Ghent, was elected a Foreign Member.

Exhibitions, &c.

Prof. Westwood exhibited a number of locusts, which formerly belonged to the collections of some of the principal entomologists in the early part of the century, and which still bore the labels of those entomologists "migratoria, Linn." These insects, however, were not the migratoria of Fischer, but were the cinerascens of Fabricius and Fischer, of which Christii of Curtis was only a synonym. The principal distinguishing character was the form of the pronotum, which in one was narrowed before the middle, and almost flat on the top, but in the other was of equal breadth throughout, and arched on the top, with the dorsal carina more raised and prominent. Prof. Westwood remarked that tradition and old specimens were, on a point of this kind, of more importance than figures in antique works, and he thought Fischer had made a mistake, and applied the name migratoria to the wrong insect. On the evidence afforded by these old specimens, he suggested that the true migratoria of Linné was not the locust with a flat or but slightly carinate pronotum, constricted in front, but the locust with an arched pronotum, with the crest or median ridge higher and more produced in front.

Mr. F. Smith said that, in consequence of a doubt expressed by Prof. Westwood at a previous Meeting, he had written to Prof. Stal, of Stockholm, who informed him that the insect placed in the Stockholm Museum as the migratoria of Linné is the form described under that name by Fischer. Dr. Stal further said that he had never had any doubt about the species, as Fischer's migratoria is the only species of locust which to his knowledge had ever been found in Sweden. Mr. Smith remarked that Linné described migratoria in the Fauna Suecica; Fischer was acquainted with both migratoria and cinerascens, and figured their distinguishing characters, migratoria having a flat prothorax, cinerascens an arched one; and now to apply the name migratoria to the form with the arched prothorax, on the strength of the specimens so labelled, would only be productive of confusion.

Prof. Westwood said that he had examined Major Parry's specimen of *Nicagus obscurus* (*vide* S. S. 2071), and without saying to what group of Lamellicorns the genus was properly referable, he felt clear that it did not belong to any of the Lucanoid families.

The Rev. H. S. Gorham sent for exhibition British specimens of *Sunius neglectus*, *Maerkel*, accompanied by the following note:—

“*Sunius neglectus* is not yet in the British list, and is very closely allied to *S. angustatus*, *Erichson*; probably they are generally mixed in collections. I have had them separated for several years, and when on a visit recently to Mr. Crotch, with his assistance was able to determine the species. From *angustatus* it differs in having the head, thorax and elytra proportionally shorter and more convex, less closely punctured, and therefore more shining. *Angustatus* has a more linear aspect, and the whole insect is more opaque. In *angustatus*, again, the elytra have a tendency to become pale, particularly at the shoulders, and the apex is more broadly testaceous, though this colour does not usually extend so far up the suture as in *neglectus*. I send two specimens of *angustatus* for comparison with what I regard as *neglectus*; one of them is a very beautiful bimaculate variety.”

Mr. Albert Müller exhibited specimens of an Indian gall formed on the mid-rib of the leaf of a species of *Gnetum*; the galls were of the size of a small acorn, consisted of a single cell, and were placed longitudinally along the mid-rib on the under side of the leaf.

Mr. Janson exhibited a large number of butterflies collected by his son, Mr. E. M. Janson, at Chontales, Nicaragua, in November and December, 1869.

Mr. Butler exhibited specimens of *Argynnis Adippe* and *Niobe*, and intermediate forms, in corroboration of his previously expressed opinion that the two were not distinct species.

Dr. Wallace, on behalf of Mr. Harwood, exhibited some dark suffused varieties of *Melitæa Athalia*; and specimens of *Herminia derivalis*.

Mr. Stainton exhibited *Cosmopteryx Lienigiella*, bred in England from Russian larvæ. The larva was discovered two years ago, near Riga, feeding in the reed (*Arundo*): its habits once known, it had since been found in this country, and Mr. Stainton had within the last two or three days bred the moth from a native larva.

Dr. Wallace addressed the Meeting on the progress and prospects of sericulture in this country and some of our colonies. He exhibited English-bred specimens of *Antheræa Yamamai*, remarkable for their great variation in tint, from ashy brown, through various shades of red, to a bright yellow or pale dove-colour; also English and Austrian cocoons of the same species, which had succeeded better in 1869 than in 1868: he considered the Eastern counties of England unfavourable on account of the dry warm temperature, and that the more humid climate of the Western coast was better suited to the insect; an equable temperature from 60° to 75° was requisite, with abundant ventilation and great cleanliness: in Moravia the Baron de Bretton had reared 28,000 cocoons in 1869, which were all devoted to the production of eggs: and Dr. Wallace thought the efforts now made in Europe to acclimatize this species would very shortly be successful. He also exhibited specimens of *Bombyx Pernii* obtained from cocoons imported from China, and some English

cocoons: this species showed no tendency to vary; it was hardy and vigorous, and likely to do well in Europe, but being double-brooded in China, this had to be carefully guarded against in attempting to acclimatize the race. Cocoons of *B. Pernii* and of *Saturnia Cecropia* had been sent to Australia, with a view to the cultivation there of these useful races. Dr. Wallace also exhibited a specimen of the American oak-feeder, *Bombyx Polyphemus*, reared in England from the egg; but this species was not yet sufficiently known in this country to speak with certainty about its value as a silk-producer. Also, Japanese silk and cocoons of the mulberry-worm, *Bombyx mori*, some very large white cocoons of a noted French race, and specimens of English silk and cocoons, which, especially some produced by Captain Mason of Farnborough, contrasted favourably with the other specimens, and had been pronounced by competent judges to be equal to the best Italian samples. The Silk Supply Association had been formed about a year ago, for the purpose of stimulating the production of silk in all countries where it was possible, and wherever the mulberry tree would grow silk might be produced: silk was the most paying crop grown; and California, Australia, the Cape of Good Hope, New Zealand, Egypt, Syria, might all be mentioned as admirably adapted to silk culture. The first number of the 'Silk Supply Record' contained an advertisement by a gentleman at the Cape, offering half profits to any one who would go out and teach him how to grow silk. California last year sent over to Europe her first contribution of silk-worm eggs; Australia this year was doing the same thing; eggs from Egypt, Syria and the Cape would soon follow; and as the price of the eggs was now very high, large profits would at first be made by the sale of eggs: four years ago the price in Japan was four shillings to five shillings an ounce, now it was a guinea an ounce, and the demand could not be satisfied; on the Continent eggs of the best races sold at a franc a gramme. Dr. Wallace also exhibited some Californian cocoons of excellent quality, and a piece of black silk, part of the first specimen made in California from Californian produce; also a Japanese cocoon of *Bombyx mori* pierced by a parasite which he thought was probably a species of Diptera: this parasite, unknown in Europe, caused great loss to the Japanese breeders by spoiling the cocoons. The cultivation of mulberry-silk had been successfully introduced into the centre and north of France, where the climate was more variable and cold than in England; and, fortified by the opinion of M. Guérin-Méneville, Dr. Wallace urged the desirability of further experiment in this direction in England: the process of reeling was simple and easily learnt, superior machinery had recently been invented in this country to facilitate the process, and cocoons would now be imported, the reeling of which would afford a new and healthy occupation for women and children.

In reply to a question from Mr. Edward Sheppard, as to the slow growth of the mulberry tree, Dr. Wallace remarked that he was glad to correct a popular error on this point. The *Morus alba*, *M. Moretti*, *M. alpina*, *M. Japonica* and

others, were used in silk culture, but the black-fruited *Morus* was not: the species mentioned were all hardy, and of rapid growth. *Morus Japonica* especially produced very large leaves; *M. multicaulis* grew rapidly and produced large leaves, but was liable to be cut off by frost.

Dr. Wallace remarked that in *Bombyx Pernii* sexual desire appeared to be inordinately strong, and on three separate occasions, when the supply of females was not equal to the demand, he had found two males inter se alium alio junctos, sibi mutuum coitum præstantes: in one case he had killed the moths with chloroform whilst they remained in pæderastic contact, and they were exhibited in situ. They were placed side by side, face to face and tail to tail, with their legs mutually intertwined.

Dr. Wallace also mentioned that males of *Bombyx Pernii* had paired with females of *Saturnia Cecropia*, *S. Polyphemus* and *Antheræa Yamamai*. From the last mentioned union fertile eggs had been obtained; a female *Yamamai* emerged on the 17th of September, 1869, and she was placed the next evening alone in a cage with a male *Pernii* which had come out late in the autumn; they were soon in copulâ; on the 19th, on being moved, she spurted out a whitish fluid similar to that ejected by the male *Pernii*, and on that day she laid 50 eggs; on the 20th she laid 75 more, making a total of 125 eggs, and was then killed for the cabinet: the eggs resembled the usual *Yamamai* eggs, and were kept apart in a cool room facing north; on the 3rd of November it was found that most of them had hatched out: the larvæ had red heads and black bodies, and so far resembled *Pernii*, which are at first black, but they had also yellow rings and lateral streaks; some were lighter, some darker; they were very hairy, their bodies long and slender, the tubercles yellow and containing several bristles. They continued to hatch out for several days till all were hatched. On the 12th of November Dr. Algernon Chapman received from Dr. Wallace two living larvæ, and fed them on *Quercus pedunculata*; on the 20th both rested for their first moult, and on the morning of the 23rd both had changed their skins; one ate its cast-off skin, the other did not; on the 29th one of the larvæ was missing, and on the 1st of December the remaining one suspended itself for another change of skin; on the morning of the 4th it had changed skin, and during its feeding up in this skin the supply of *Quercus pedunculata* failed, but various species of evergreen oak were tried, and it seemed to eat almost any indifferently; on the 16th of December it again threw off its skin, and after the 23rd was at times in a temperature as low as 50° Fahr.; on the 2nd of January, 1870, it again changed its skin, and ate the cast-off skin during the night; and on the 18th it began to look out for a place to spin. In the last two skins it would drink several drops of water, as many as six or eight, every day, but when the food was wet it would not do so: except at the period mentioned above, the temperature was always above 55°, and the only effect of the lower temperature was to retard growth. The cocoon obtained from this larva had been sent by Dr. Chapman to Dr. Wallace, and was exhibited

to the Meeting: the chief feature worthy of notice was the dominant influence of the male parent upon the hybrid offspring, the larva throughout its career and the cocoon more closely resembling *B. Pernii* than *A. Yamamai*. The dominant influence of the male had also been observed by Mr. Brady, of Sydney, in his experiments on *B. mori* (see Report of Acclimatization Soc. of Sydney for 1868). Another point worthy of observation was that, even at so late a period of the year, the larva fed well on the evergreen oak, which, according to Dr. Wallace's experience, was largely eaten by all the oak-feeding species.

Paper read.

The following paper was read:—"Descriptions of twelve new exotic species of the Coleopterous family *Pselaphidæ*;" by Prof. Westwood.

Eight new genera were founded, under the names *Goniastes*, *Rhytus*, *Curculionellus* (three species), *Sathytes*, *Pselaphodes*, *Sintectes*, *Phalepsus* and *Ryxabis*; and two species were added to the genus *Bryaxis*.

March 21, 1870.—H. W. BATES, Esq., Vice-President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—*'Tijdschrift voor Entomologie,'* ser. 2, vol. iv. pts. 2—6, vol. v. pt. 1; presented by the Entomological Society of the Netherlands. *'Stettiner Entomologische Zeitung,'* 1870, pts. 4—6; by the Entomological Society of Stettin. Stierlin's *'Käfer-Fauna der Schweiz'*; by the Entomological Society of Switzerland. *'L'Abeille,'* vols. i.—vi.; by M. de Marseul.

Exhibitions, &c.

Mr. Dunning exhibited a locust captured near Thirsk, Yorkshire, in the autumn of 1849: the prothorax was flat and constricted in front, and notwithstanding the contention of Prof. Westwood (S. S. 2144) he thought this was the true *Locusta migratoria* of Linné. The appeal to tradition did not tell entirely on one side: Fabricius when he described *cinerascens* was acquainted with *migratoria*, and it was clear from his description that *cinerascens* was the form with the arched prothorax; consequently *migratoria*, from which Fabricius separated *cinerascens*, was according to his belief the form with the flat prothorax. But further, from the time of Fabricius to the present, *cinerascens* had always been regarded as a doubtful species, the majority of authors having treated it as only a variety of *migratoria*; the entomologists from whose collections the Oxford specimens were derived might have been of this opinion; at all events until it was shown that they recognized the existence of the two as

distinct species, the argument derived from their having labelled specimens of *cinerascens* with the name *migratoria* was far from conclusive. Finally, Linné's own description of *migratoria* applied to the form commonly so called, and not to the form with the arched prothorax. The differences between the two had been pointed out by M. Brunner de Wattenwyl (Ann. Soc. Ent. Belg. xi. 32) so clearly as to have induced M. de Selys Longchamps to recognize *Pachytylus cinerascens* as a species. The recent discussion had been provoked by the appearance in this country of *Acridium peregrinum*, and had satisfactorily brought out the fact that, if *migratoria* and *cinerascens* (= *Christii*, *Curtis*) were really distinct species, both of them had occurred in Britain.

Mr. Howard Vaughan (on behalf of Mr. Henry Moore, who was present as a Visitor) exhibited some specimens of *Dianthœcia conspersa*, two of which were so coloured as to bear a singular resemblance to *D. Barrettii*: they were found on the coast of Devonshire in 1861. Although the varieties of *D. conspersa* were mixed with true *conspersa* and true *Barrettii*, the Lepidopterists present had no difficulty in distinguishing between the *Barrettii* and their simulators.

Mr. Bond exhibited *Epichnopteryx betulina*, *Zell.* (= *Psyche anicanella*, *Bruand*), found by Mr. Mitford at Bishop's Wood, Hampstead, in 1869: the female was distinguished by a snow-white anal tuft; the larva-cases resembled small cases of *Psyche fusca*, but the habit of the insect was quite different, *E. betulina* being always found on the upper branches of the birch. (See Ent. Mo. Mag. vi. 94, 186).

Mr. Stainton exhibited *Cosmopteryx Lienigiella*, bred from a larva found feeding in the reed (*Arundo phragmites*), in Wicken Fen, Cambs. The English specimen was both larger and fairer in tint than the Russian specimens shown at the previous Meeting (S. S. 2145).

Mr. F. Smith exhibited a larva from Monte Video, profusely covered with hairs or bristles having clavate tips: he presumed it was the caterpillar of a moth, and Dr. Horsfield had described the larva of *Limantria* as having a somewhat similar covering.

Mr. McLachlan added that the larva of *Acronycta alni* possessed some hairs of the same shape, though few in number.

Mr. Albert Müller mentioned that Meyer-Dür had pointed out certain differences between the larvæ of *Argynnis Adippe* and *Niobe*: in his 'Verzeichniss der Schmetterlinge der Schweiz,' published in 1852, that author states that *Argynnis Niobe* in Switzerland inhabits only the alpine and sub-alpine regions from 3000—5600 feet above the sea, and that its larva has in the full-grown state a white dorsal stripe and flesh-coloured spines, whilst *A. Adippe* is not found at a greater elevation than 3300 feet, and its larva has no white dorsal stripe, but a pale-reddish lateral stripe instead. Mr. Müller argued, that though the food-plants of both were various species of violet, until this evidence was rebutted, or unless two different larvæ produced the same form of imago—unless there were dimorphic larvæ—*Adippe* and *Niobe* must be considered

distinct species, even though (which he did not admit) the perfect butterflies were undistinguishable.

Mr. Butler was not acquainted with the larvæ of *Argynnis Adippe* and *Niobe*, and his suggestion that the two forms were one species was made from observation of the perfect insects only; he had found the two flying together, and the sexes pursuing one another: he thought the differences between the butterflies, without amounting to specific distinction, might be accounted for by differences in the external conditions to which they were subject. An instance of this kind had lately come under his notice; in India, Capt. Lang had been in the habit of taking what at the time of capture he thought were two distinct butterflies, one in marshy land, the other in dry situations, the marsh insect being thickly covered with down, the highland insect not; but Capt. Lang was now satisfied that the two were but one species, *Callerebia Scanda*, which was liable to modification by surrounding circumstances.

Mr. Stainton mentioned an instance of dimorphism in the larva state; a form of larva of *Sphinx Atropos* sometimes occurred with the ordinary markings obliterated and with only a few whitish blotches in front, so that there was really nothing but the shape of the anal horn by which the larva could be identified as *Atropos*: he had known of the occurrence of about twenty of these abnormal larvæ in the last twenty years; and there was no perceptible difference in the imago.

Mr. J. Jenner Weir referred to *Gnophos pullata*, which was found nearly white on the chalk downs, and in fact varied from nearly white to sooty black according to the geological formation of the locality where it occurred.

Mr. Pascoe mentioned *Apion Germari*, which when found on *Mercurialis perennis* was constantly of one form, and when found on *Mercurialis tomentosus* was constantly of another form; yet no one hitherto had doubted the specific identity of the two forms.

Mr. Butler recalled the fact that, on the same plant of golden-rod (*Solidago virgaurea*), larvæ of *Mamestra persicariæ* might often be found of three or four different colours.

Mr. Henry Moore had once found larvæ of *Eupithecia virgaureata* feeding on the petals of a crimson dahlia, and they assumed a crimson hue, in lieu of the ordinary ochreous with sepia-coloured markings.

Paper read.

The following paper was read:—"Notes on the Butterflies described by Linnæus," by Mr. W. F. Kirby.

New Part of 'Transactions.'

The first part of the 'Transactions for the year 1870' was on the Table.—
J. W. D.

Ornithological Notes from North Lincolnshire.

By JOHN CORDEAUX, Esq.

(Continued from S. S. 2081.)

MARCH, 1870.

Golden Plover.—Excepting at the time of their autumn migration, these birds are now tamer and more approachable than at any other period of their sojourn in our marshes. By the first week in March they have commenced moulting and changing their winter dress: with them this seasonal change takes place some weeks earlier than in the gray plover, and they are off to their northern breeding-haunts fully six weeks before the latter leave our coast. In the second week of the month the flocks contained birds in summer plumage, others in transition, and many which as yet shew no indication of a change. The spring note of the golden plover is extremely wild and beautiful; some of its modulations closely resemble the notes of the black-bird: to me, however, there is always something inexpressibly melancholy in this spring call, recalling as it does the recollection of many a wild northern moor and lone mountain summit. Their flight, too, now differs from the winter, is much more buoyant, and often swifter, or, if I may use the expression, has more *élan*. When alighting the flock hover for a time, and then slowly float downwards on motionless wings. They are late this year in leaving our marshes, and hundreds in full summer dress remained to the middle of the first week in April, and I saw a single bird on the 25th.

Snow-flake.—March 9. Observed many hundreds this morning on the narrow belt of sand fringing the foot of our sea embankment. They are busily employed in picking up small fragments of sand and gravel. Some seen as late as the middle of the month.

Wild Duck.—March 10. The stomachs of two mallards contain oats, vegetable matter, and a mass of the broken shells of marine bivalves.

Woodcock.—March 10. Are now moving northward: we always find some during the second week in March in our plantations and on the coast. They do not linger more than two or three days, and are then off for their breeding-haunts; fortunate in having run the gauntlet of so many breech-loaders.

Smew.—March 15. Amongst various wild-fowl from the coast of Holland, brought into Hull by the packets, I picked out two mature smews.

Guillemot.—March 17. A guillemot shot on the Humber is in full winter plumage.

Meadow Pipit.—March 20. Meadow pipits have arrived in their summer quarters. They are the first of our little spring visitors whose return we welcome in our bleak marshes, usually preceding the less hardy pied wagtails by ten days. A very small proportion of those breeding here remain to winter.

Pied Wagtail.—March 30. The main body arrived about this date, which is later than an average.

APRIL.

Starling.—April 2. There were two immense flights of starlings on the coast this morning, and, as our resident birds had paired some weeks since and are now busy nesting, these are probably migrants about leaving the country. I did not again see these two flocks anywhere in our marshes, but other flocks of various sizes daily visited the grass pastures along the coast up to the 10th, after which date, excepting our usual stock of paired residents, I did not observe any.

Variety of the Rook.—April 4. There was a great outcry in our small rookery this afternoon, apparently caused by the presence of a strange rook, having all the primaries of one wing, and all but the first of the other, cream-coloured. Young rooks were calling in the nest on the 7th.

Redwing.—April 6. Last seen.

Tree Pipit.—April 6. First arrivals; two seen: unusually early for this bleak district.

Chiffchaff.—April 7th. First heard.

Stock Dove.—April 8. Observed a pair in an old decayed ash in Riby Park. Are by no means common.

Wheatear and Whinchat.—April 9. Seen.

Chimney Swallow.—April 10. First. Another on the 13th, but in no numbers before the 25th.

Willow Warbler.—April 13. Several heard.

Hooded Crow.—April 13. Last noted. A flock on the coast near North Cotes. The "hoodies" had paired by the first week in March; after which they only congregate for some special object—a feast on some tide-cast carcase, or in those places in the fields where the seed-corn is inefficiently covered; they also assemble in small companies for migration. On the 11th I saw a flock, flying at a considerable height, leaving the coast and passing seaward in a direction which, if

persevered in, would land them on the Naze in less than twelve hours. A solitary representative of the family remained in company with a carrion crow in the marshes nearly to the end of the month.

Fieldfare.—April 13. Observed some very large flocks in a plantation on our north wolds, but have not seen any after this date.

Dunlin.—April 19. There was a large flight of dunlins in summer plumage on some fallow land in the marsh, where they daily resort at high water. On bringing my telescope to bear upon them I find, with one or two exceptions, every bird asleep, their bills tucked away beneath the scapulars.

Yellow Wagtail.—April 20. First seen.

Redstart, &c.—April 21st. Wind south, very warm and fine. First appearance of redstart, sand martin, whitethroat and sedge warbler.

Buzzard.—April 23. Saw a solitary buzzard soaring above the "New-close woods," the highest portion of our north wolds.

Cuckoo.—April 29. The severe weather and cutting north winds of the last week have probably retarded the arrival of the cuckoos. On the night of the 28th, after a shower, the wind changed to S.W., and as early as 4.30 on the morning of the 29th, the cuckoos were calling all round us.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,
May 2, 1870.

Extracts from a Memoir intituled 'A Monograph of the Alcidae.'

By ELLIOTT COUES, A.M., M.D.

(Continued from Zool. S. S. 3132).

GENUS SIMORHYNCHUS, *Merrem*.

Of moderate and very small size; general form stout. Usually with a crest, or with elongated feathers about the head. Bill variable: sometimes simple, often irregular in form, with various elevations and depressions, often with nodules or other accessory elements; always stout, compressed, shorter than the head, the culmen very convex, the tip acute. Nostrils entirely unfeathered. Wings and tail of the ordinary shape and length. Feet small and short; tarsus compressed, entirely reticulate, shorter than the middle toe. Toes long, outer and middle about equal in length, the claw of the latter largest. Claw of

inner toe reaching base of middle one. Claws much arched, compressed, acute, the inner ridge of the middle one scarcely dilated.

The genus as above defined is framed to include a number of species, all more or less closely allied, yet presenting differences from each other in form in almost each instance. The various species are all nearly identical in the structure of the wings, feet and tail; in the bill no two entirely agree. Each presents *sua speciei* characters in the shape of the bill; but the very fact that this organ varies so much seems to indicate that the differences are no more than of specific consequence. *Psittacula* is perhaps the species which has been most generally separated from the others, in view of its oval upper, and falcate under, mandible. But if this bird is to be generically distinguished, so also must *crstatellus*; for the latter differs in still greater degree, in the presence of an anomalous accessory element in the bill. This one being taken out, what to do with *camtschaticus*, so very closely allied? It is almost identical with *crstatellus* in all points of structure, except in the details of the configuration of the bill, and in these points it stands intermediate between this species and some others. Then *microceros* and *pusillus* would have to stand by themselves. So also would *tetraculus* and *Cassini*. These two, particularly, differ more from all the rest, in their short, simple conic bills, than any of the rest do from each other. In fine, if *psittacula* be allowed generic rank, so also must *crstatellus*, and *pari passuso* must no less than three more genera be recognized. It seems much the most philosophical to group all these forms together in a single genus, regarding the differences in the bills as specific.

In such an acceptation, the genus comprises eight species, which may be thus analysed:

Species (8).

- | | |
|---|-----------------------------------|
| I. <i>Phaleris</i> , Temm. Upper mandible oval, under mandible falcate; rictus curved upwards. No crest. | |
| Blackish; white below from the breast; a white spot below the eye. | - - - - - 1. <i>psittaculus</i> . |
| II. <i>Simorhynchus</i> , Merrem. Upper mandible triangular, under mandible nearly straight; rictus horizontal, sinuate. A long recurved crest. | |
| Angle of the mouth with a supernumerary corneous piece. Sides of under mandible unfeathered. One series of white feathers on the head. | - - - - - 2. <i>crstatellus</i> . |
| Unknown. (See Pallas' description, <i>infra</i>). | - - - - - 3. <i>dubius</i> . |

Angle of mouth without a supernumerary piece. Sides of under mandible feathered. Three series of white feathers on head. - - - - -

4. *camtschaticus*.

III. (*Unnamed subgenus*). Bill very small, short, conic, simple, destitute of any irregularities whatever.

Large; bill moderately compressed; a long recurved crest; fuliginous black above, fuliginous gray below.

Wing 5·50; rictus ·70; width of bill at base ·30; tarsus, middle toe and claw together 2·50 - - -

5. *tetraculus*.

Small; bill excessively compressed; no crest (?); uniform plumbeous, lighter below, whitish on the abdomen. Wing 4·25; rictus ·60; width of bill at base ·15! Tarsus, middle toe and claw together, 2 00. - - - - -

6. *Cassini*, n. s.

IV. (*Ciceronia*, Reich). Smallest of the genus. Short white hair-like feathers over the forehead.

Length about 6·50; height of bill at base ·30. Upper mandible with a basal knob; bill stout and wide for its length. No decided white patch on scapulars. - - - - -

7. *microceros*.

Length about 5·50; height of bill at base ·20. Upper mandible without a knob; bill slender and narrow for its length. Conspicuous white patch on scapulars. - - - - -

8. *pusillus*.

Symorhynchus psittaculus (Pall.), Schl.—Habitat: Asiatic and American coasts of the North Pacific; Aleutian Islands; Kamtschatka (Mus. Acad. Philad.); Russian America (Mus. Smiths. Institution); Behring's Sea (Schlegel, Mus. Pays-Bas); Japan?

Bill moderately large, much compressed, densely feathered for some distance at base of upper mandible and sides of lower. Upper mandible almost perfectly oval in its lateral aspect, its culmen gently curved, and its tomial edges more decidedly convex, the former descending, the latter rapidly ascending to meet at an obtuse angle. Lower mandible extremely slender, falciform in shape, strongly curved upwards, its tip very acute, its tomial edges concave, corresponding to the convex tomia of the upper mandible; the gonys much and regularly curved. Nasal fossæ long and wide, but rather shallow; the nares rather broadly linear, or narrowly oval, overhung by a slightly projecting scale. Frontal feathers embracing culmen in a slightly reëntrant angle, thence descending about perpendicularly to the very edge of the upper mandible. Feathers on side of lower mandible not extending quite so far as those on side of upper. Inter-ramal space fully feathered, but in consequence of the peculiar shape

of the rami, there is a small pit or fossa between them, just at their junction, which is unfeathered. Wings and tail of the usual length and shape; the length of the latter contained about three and two-thirds times in the length of the former from the carpal joint to the end of the longest feather. Tarsus shorter than the middle toe without its claw.

Adult: Without a crest. A series of elongated very slender filamentous white feathers from the eye backwards and downwards, white. Entire upper parts, with chin, throat, breast, and flanks, fuliginous or brownish-black, lighter or grayer below than above; other under parts pure white, pretty trenchantly defined against the darker colour of the breast. Bill orange or coral-red, becoming enamel yellow at the tip, and along the cutting edges. Legs and feet dull greenish, darker posteriorly (in the dried state).

The above is the state of plumage of apparently most mature birds; but is much more rarely met with than the succeeding:—Upper parts as just described, but no whitish feathers below and behind eye. Entire under parts white, marbled on the throat, breast and sides with dusky or blackish; this colour usually occupying chiefly or wholly the tips of the feathers, whose bases are white. The mottling is thickest on the breast, most sparse on the abdomen; but it varies in degree with almost every specimen. A state of plumage is described as that of the young, in which the white occupies nearly the whole under parts, and is scarcely mixed with dusky, even on the throat and breast. This stage is not represented in American Museums. The tendency of the mottling, as the bird grows older, seems to be to increase on the throat, breast, perhaps on the sides and flanks, and to disappear from the other under parts, leaving the latter pure white, in marked contrast. The under wing-coverts are always dark ashy brown; the short tibial feathers the same.

Length about 9·00; wing 5·40 to 5·75; tail 1·50 to 1·60; tarsus (average) 1·00; middle toe 1·10. Bill: chord of culmen ·60, chord of gonyes just about the same; depth opposite posterior end of nostrils ·45; width at same point ·30; rictus nearly or about 1·00.

This very curious species may be instantly recognized, in whatever state of plumage, by the remarkable configuration of the bill; the rictus being strongly curved upwards, the upper mandible oval, obtuse, the lower falciform, acute. It is one of the longest and best known of the North Pacific representatives of the family, and is apparently a very common bird, though specimens do not occur in collections so

often as might be expected. It seems to be decidedly boreal in habitat, and is not recorded, on the American coast, so far south as the United States, though occurring at Sitka, R. A., and probably off the coast of British Columbia.

Simorhynchus cristatellus (Pall.), Merrem.—Habitat: Asiatic and American coasts and islands of the North Pacific, to Behring's Straits; perhaps into the Arctic Ocean. Kamtschatka and Behring's Straits (Mus. Acad. Philad.), Japan, and north-west coast of America (Mus. Smiths. Inst.). Not known to occur on the American coast so far south as Washington Territory, U. S.

Bill surpassing that of all other species of the genus in the extent and diversity of the irregularities of its surface and contour; these irregularities chiefly centred in the base and commissural edges, and produced by the addition of a supernumerary corneous element to the base of the upper mandible just at the angle of the rictus, as well as the expansion and projection upwards and outwards of the sides of the lower mandible towards and at its base. Bill, except in the length of its unfeathered commissure, rather short and wide, the length of culmen scarcely surpassing the width of bill at its base. Upper mandible with the culmen short and regularly very convex from base to tip, which latter is rather acute, and slightly overhangs the lower mandible; its tomial edge extremely sinuate and irregular, lightly notched just behind the tip, at the base widened and somewhat everted, for the reception of the cutting edge of the lower mandible; lower mandible not nearly so deep as the upper, somewhat ascending towards the tip, which latter is slender and acute; the gonys short, perfectly straight, moderately ascending, the sides of the lower mandible elongated, everted, their tomial edge elevated and dilated at the base, posteriorly corresponding in contour to the antero-inferior outline of the supernumerary piece. The latter is a subcircular or sub-square corneous plate, slightly concavo-convex, wedged in between the bases of the tomial edges of the two mandibles, and forming the angle of the rictus; in colour and texture it resembles the rest of the bill, of which it is a true component element. Nasal fossæ small and inconspicuous, not deeply furrowed, filled in by corneous substance like the rest of the upper mandible; the nostrils small, short, linear-oblong, placed close by the tomial edge of the mandible, overhung by an arched and much dilated corneous scale. Feathers extending on culmen to a point opposite the angle of the gonys, thence descending perpendicularly along the sides of the bill, just past but not touching

the posterior extremity of the nostrils; thence following the sinuosities of the commissural edge of the upper mandible to the supernumerary piece, and around the border of the latter,* but not encroaching upon it. Interramal space of lower mandible densely feathered; but no feathers encroach upon the sides of the lower mandible, contrary to the usual rule in this group.

Wings and tail of the usual shape and structure of this group; the length of the latter contained three and a half times in the length of the former from the carpal joint to the end of the longest primary. Legs short, stout, little compressed. Tarsus entirely reticulate, shorter than middle toe without claw; outer toe as long as the middle one; its claw shorter and smaller than that of the middle one. Inner lateral toe extremely short, the tip of its claw falling far short of the base of the middle claw.

Adult: An elongated crest of twelve to twenty slender feathers springing in a bundle from one point at the extreme forehead, far in advance of the angle of the rictus, and curving over forwards in the greater part of a circle. These feathers are not truly filamentous, having well developed, though short barbs, and appear narrower than they really are, from the slight obliquity of the barbs from the shaft. A slender bundle of filamentous feathers from the posterior canthus of the eye over the auriculars and sides of the neck. A very few shorter filamentous feathers forming a sparse interrupted superciliary series. All these filamentous feathers white or whitish; the crest concolor with the plumage of the upper parts. General colour of the crown, nape, wing, tail and whole upper parts glossy blackish, with a good deal of a fuliginous or brownish (not plumbeous or cinereous) tint; under parts a diluted shade of the same, or much more brownish gray, tending on the abdomen and posterior under parts generally to ashy gray. Under surfaces of wings and tail like abdomen. Bill and appendages orange or vermilion-red, yellowish towards the tip. Feet dusky greenish, an indefinable colour, in the dried state.

Length about 9·00; wing 5·25; tail 1·50; tarsus, 9·00; middle toe and claw 1·35; outer toe and claw about the same, or slightly less; inner toe and claw 1·00. Bill: chord of culmen ·45; tomia of upper mandible, excluding supernumerary piece ·70; greatest width of the

* This supernumerary corneous element is not attached by its whole surface to the subcumbent bone; but a part of its upper border is free and projects a little away from the skull. The fossa down behind this free raised border is fully feathered.

latter '25; tomia of under mandible '90; gonys '40; depth of bill opposite posterior end of nares '45; width at same point '35.

Young. Similar to the adult, except in the following points:—the bill is smaller, weaker, less irregular and sinuous in outline, less brightly coloured, wanting the expansion and eversion of the tomial edges of the two mandibles near their base, and with little or no trace of the supernumerary piece at the angle of the mouth. Even in the youngest specimens the bill shows unmistakable signs of its future character, and cannot be confounded with the simple conic bill of *tetraculus*, &c. The crest and white setaceous feathers are wanting, or only traces of them are apparent. The colour is less blackish, more inclining to a fuliginous dusky above, and to a light dull brownish gray below.

This species never acquires a distinct parti-coloration like that of most species of the genus. With the exception of the whitish filamentous feathers on the head, the colours are uniform over the whole body, varying in shade on different parts; and the transition from the darkest, that of the upper parts, to the palest on the lower is effected by imperceptible degrees. The brilliantly coloured bill is a conspicuous feature. The colour of the feet cannot be accurately defined in the dried state; but the tints are probably not very striking. The crest only makes its appearance after the bird is full grown, is at least nearly a year old, and has acquired pretty much the perfect shape of the bill. The same is true of the white supra- and post-ocular filaments; and generally among the Phaleridine birds, the presence of these peculiar head-ornaments may be relied on as indices that the bird is adult, and that its bill has acquired its mature form. It is just possible, however, that these remarks may not apply to the setaceous *frontal* feathers of *S. microceros* and *pusillus*. The crest of *R. cristatellus* first appears as a little bundle of short straight feathers shooting out backwards from the plumage of the forehead. These plumes, in an early state of their growth, are much broader, that is, with more distinct barbs or fibrillæ, than subsequently; considerable time elapses before they begin to curl over forwards, and they may continue straight until they are an inch or rather more in length. When full grown, they are nigh unto two inches long, curve until they almost make a circle, drooping gracefully, helmet-wise, upon the bill itself. The crest of this and other species is doubtless moved by peculiar muscles, and entirely subject to the control of its wearer, like the very similar crests of the birds of the genus *Lophortyx*.

Simorhynchus camtschaticus is obviously the species most likely to be confounded with the present. In fact, such has been its fate at the hands of so distinguished an ornithologist as M. Temminck. It would be wasting words to institute a comparison between the adults of the two species at this late day. In the youthful condition, before the distinctive head-ornaments are apparent, and even before the bill has attained its perfect form, so characteristic in each case, the two species may be distinguished with equal facility. In *camtschatica*, the basal moiety of the sides of the lower mandible is always feathered; in *crstatellus* this part of the bill is in its whole length always perfectly bare of feathers. This latter feature is, in fact, the most excellent diagnostic character of *crstatellus*; by the aid of which alone the species may always be recognized, be it in never so immature condition, with never so undeveloped a bill. The relationships of this species to *dubius* and *tetraculus* need not be noticed here, as they are given in all necessary detail under the head of these species respectively.

This species was introduced into the records in 1769, by Dr. Pallas, who fortunately gave it a binomial name, thereby securing it from appropriation by Gmelin, who contrived to filch so many species from Pennant, Latham, and other contemporaneous writers. Dr. Pallas first described it as an *Alca*, but afterwards removed it to the genus *Uria*—a very unwarrantable procedure. It is the type of Merrem's genus *Simorhynchus*, and of Brandt's genus *Tylorhamphus*; but not, as generally supposed, of Temminck's genus *Phaleris*, which is based upon *Alba psittacula*, *Pall.* Though thus referred to so many different genera, it has hardly a specific synonym, unless the name on Audubon's plate 402 be regarded as such.

Numerous excellent specimens of this bird are in the collections of the Philadelphia Academy and of the Smithsonian Institution, from the various localities quoted at the head of this article. It is decidedly a boreal species, not recorded from the coast of the United States, though occurring on the Asiatic shores as far south, at least, as Japan.

Simorhynchus dubius, Coes. This species, if it be really such, appears appropriately named, since there is nothing to distinguish it from *crstatellus* beyond certain differences in the bill which might with propriety be attributed to an immature condition of the specimen upon which the species was based. And yet the mention of a recurved crest of feathers upon the forehead by Dr. Pallas militates against the supposition that his specimen was not adult. The great reliability

which the scientific writings of Dr. Pallas claim, and justly deserve, from their uniform excellence and accuracy, necessitates no small degree of caution in a decision against the validity of one of his species. It will be evident upon the least reflection that, for example, such a perfectly valid species as *tetraculus*, might be so described, in a few sentences, that no striking impression of its difference from *crstatellus* should be conveyed. It is also to be borne in mind that Prof. Brandt, probably unsurpassed by any one in the accuracy and extent of his knowledge of the *Alcidæ*, and particularly well fitted to judge of Dr. Pallas' works, admits the species in question as distinct. And in the present instance it seems preferable to coincide with the views of these naturalists, and to allow the species to hereafter stand upon its own merits, until the proof that it has none is forthcoming, notwithstanding Dr. H. Schlegel's summary assignment of it (as well as of *tetraculus*) to *crstatellus*.

There is no specimen purporting to represent this species in any American Museum.

(To be continued.)

Bird-haunts of the Outer Hebrides.

By THEODORE C. WALKER, Esq.

(Continued from S. S. 2119).

IV.

THE kittiwake gull, shot down by thousands for its plumes, here at last has found a safe breeding place, secure while the maelstrom of current seethes and rages below—secure though its worst enemy, man, approach from above, for the birds, though shot, will only fall into the water. The lovely birds are flickering within a few inches of me, as lying perfectly still on a narrow ledge, they again approach their nests, male and female sitting side by side; and to see their evident rejoicing when they find their eggs have not been taken, murmuring to one another, and crying, is one of those sights which thrill through the heart of a lover of Nature. They select those places which are the most precipitous, with fewest crannies, building their nests against the face of the rock, where the smallest crevice affords a resting place; they generally prefer breeding towards the base of the precipice, out of the way of the foul guillemot-ledges, but they by no

means confine themselves to these situations, odd pairs being scattered irregularly up its face, even to the top. Mac, who knows every ledge and crack of Beorlan, is collecting a lot of kittiwake's eggs for eating: when boiled hard they are very delicate, far more so than those of the guillemot and razorbill: the white of all these eggs is semitransparent, and the yelk is of a deep orange colour.

A few more cool and cautious steps bring us to a crack overhanging the sea, with a projecting crag above, which shelters us from the rain, which has just come on as it only can rain in the Outer Hebrides. The wild wind shrieks above, howling and raging over the precipice, then, falling in rage on the sea beneath, strips off the tips of the waves in spray, which is dashed against the rocks, and rain and spray trickle down the rock in tears of regret that the lovely sight is shut out. The drifting rain veils the weeping crags, and the distant headland looms out, faint and dim; the sea and sky are blended in one dull gray, with not a gleam of hope struggling through. The rain-drifts whirl in dark wreaths above and around; the roaring of the wind, the thunder of the Atlantic billows rushing into the caverns and again returning to meet the next approaching wave, which dashes high up on the face of the precipice; all combine to produce a scene of never-ceasing strife: each wave adds to the noise which echoes and re-echoes through this amphitheatre of rock, and mingles with the mournful plaint of the kittiwake, the fiendish baying and hoarse croaking of the guillemot and the razorbill, until the air is filled with a chaos of sounds that once heard can never be forgotten.

The rock birds are diving in the water or sitting on the rocks, unsheltered from the wind and rain; and I now observe that the ledges on which the guillemots lay, being broader, are more exposed to the rain than the cracks and places on which the razorbills breed: this is no doubt a wise provision, that the foul excrement of these birds may be cleansed better.

It is a weird sight to see the razorbills and guillemots, heavy, thick-set birds, dash out from the rain-filled air, and alight abruptly; to see the kittiwakes, light as spirits, flickering above and around one, floating in the air, the air alive with birds, thick as snow-flakes on the winter wind, till the eye is unable to follow them, the ear confused in trying to distinguish the individual cries seething up from this bird city. The kittiwakes fascinate my gaze; they seem to be upheld by some invisible hand; they float above and around me so lightly that the eye is mesmerized in watching them, and I am almost tempted to throw

myself out into the air, above the treacherous dark green sea, which is foaming underneath this overhanging rock.

But a gleam of light suddenly pierces the dark rain-mist; slowly the nearest crags and points loom out; the rain, dripping from the skirts of the retreating clouds, slackens and ceases; white flocks of cloudlets slowly wreath round the brows of the enormous precipice; and as the last headland looms out, dark and sullen, from the skirts of the black rain-mist, the sun bursts through the rents of the clouds, and sheds his warm light into this rocky bay, tinting up the precipices, till the dripping rocks sparkle with rainbow-light, and the never-ceasing snow-storm of birds, flickering above, below and around, are almost dazzling, in their purity, against the sullen black clouds.

The dripping rocks being extremely unsafe to walk on, owing to the slime and wet, Mac and myself lie in this crack and rest, and gaze in silence at the scene. One feels very insignificant in the midst of such a scene: the enormous precipices towering to a terrific height, their sides weather-beaten and lichen-covered, and cracked and minutely fissured, by battling with the storm and the sea for countless ages. The precipice of Beorlan shows very distinctly the positions selected by the different species of rock birds for breeding. From the summit to about half-way down it is a steep slope, sloping just enough to allow the bladder-campion and thrift to grow, out of which masses of rock peep, and blocks and *débris* of rock are scattered thickly. On every stone sits a puffin, sometimes several; every square foot seems occupied, but they are much thicker in some places than others: they have burrowed holes in the soft turf, in which the females are sitting, and now, after the shower, many females come out and toddle about, walking bolt upright, their pretty orange-webbed feet, curious bill, white front and small black wings making them look very grotesque. Their mates have been standing at the entrance of their holes, and now, joined by the females, they fly down to the sea together, and gambol and splash about in great glee.

The razorbill auks occupy the next position, many laying their one large egg on the rougher cracks or ledges, and others under fallen pieces of rock: although they occasionally lay on the same ledges with the guillemots, they generally select cracks and narrow crannies for themselves, laying their single egg on the rougher portions: this is doubtless because their eggs, being less pyriform or blunter, do not roll round so readily as do the eggs of the guillemot, which are laid on broad flat ledges, and which, being more pointed at the end,

roll round on their axis when touched. The razorbill and guillemot when hatching lie on their eggs, and the males, when not fishing, stand by the side of their mates; so some seem sitting, others standing. It is a pretty sight to see, far across the rolling seas, small parties of razorbills and guillemots coming straight to the rock, flying close to the tips of the waves, following one another in a line; then as they approach the cliffs they rise and separate, each flying direct to his mate, who receives him with great delight; he disgorges the fish, which she feeds upon; he toddles round about the egg and inspects it, then they bow and croak to one another in a most loving manner, and the female flies down to the sea to splash and dive and flutter along the top of the waves with exuberance of delight.

Many rock birds select those precipices which are in the immediate neighbourhood of good fishing ground: some fish and dive in the neighbourhood of the precipices, but by far the greater number fly to great distances in search of fish. I have seen puffins, razorbills and guillemots fishing all up the east side of the Outer Hebrides as far as Stornaway Harbour, and as far south as Islay, the puffins generally singly and the guillemots and razorbills in small parties. In a fog one may tell the direction of their breeding-places by their flight; straight as an arrow, swiftly they speed in strings of four or five or more, just above the tips of the waves, their small wings flapping so fast that one can hardly distinguish the rate: they are wonderfully rapid flyers; how such a thick-set large body is propelled at a pace so as to outstrip the long-winged, light-bodied gulls is a mystery to me: the form of their bodies, so admirably adapted for their mode of life, shows the wisdom of the great Creator: a heavy, thick-set body, powerful webbed feet placed close to the short tail, well suited for diving; very short yet strong wings, so that they can fly under the water in pursuit of fish; and a long sharp powerful bill to hold their prey.

Some naturalists have expressed a doubt whether the rock birds can distinguish their ledges and their own eggs: I have no doubt that they can. To test this, we threw a stone at a ringed guillemot sitting below us, and cause her to fly off her egg, and in a little while the same ringed guillemot came to the same egg: in another place we threw some red paint over some razorbills and guillemots; the next day there were the same red-painted birds incubating the same eggs.

The rocks having dried a little, Mac proposes going further down:

I follow close behind; we cautiously climb with hands and feet down the ledges of the precipice: the rock is slimy with the dung of the birds, and the utmost caution is necessary; we creep along the foul ledges, the guillemots stopping till the last moment before leaving their beloved eggs; there are so many that we unfortunately roll several over and smash them. It seems a wise provision that the guillemots lay on the lower and broader ledges, for they make so much more filth that if they occupied the higher ledges the filth running down would pollute the whole face of the cliff, so that the other birds would be most uncomfortably situated; not that the guillemots make more dung than the razorbills, but that they lay closer together and in greater numbers. The bright-spotted green eggs look most beautiful on the ledges, and I am tempted into many perilous places to get them. Most of the eggs obtained on these broad ledges are so stained with filth that they cannot be cleaned: the dark malachite-green eggs are stained of a light sap-green colour by the excrement: the cleanest eggs are those laid separately. The green and black-spotted eggs seem the commonest varieties; but there are not such finely-marked eggs here as I have seen at Ailsa Craig and Flamborough Head.

V.

In crevices just below me are several guillemots incubating, and a ringed guillemot in their midst: in order to observe whether its egg is any different in colour from the others, I carefully approach: at my approach nearly all the male guillemots have flown off, and each female is still on her egg: they stand upright now, watching with palpitating breasts and bills gaping with fright what I am going to do, loth to leave their eggs till the last minute. This is not a ledge, but an irregular basin from which a huge piece of rock has fallen, leaving a succession of cracks, crevices and jumble of loose rock. The ringed guillemot is laying in one of these crevices; several razor-bill auks in the same positions, and a few guillemots occupy the flatter portions. As I cling to the rock, quite still, the guillemots again incubate: as the egg is too high and large to stride over comfortably, the bird approaches it, and, bending over, uses her bill and pushes it underneath her breast, working and writhing herself about till the egg is comfortably settled. One poor bird, in her terror, has awkwardly displaced her egg, which goes bump, bump, down the irregular rock for about a foot; the poor guillemot follows, trying in vain to stop it with her bill, till, lodged in a crevice, she works it

with her breast and bill into a secure position. Keeping my eye fixed on the ringed guillemot, I rapidly scramble down, and clap my Scotch bonnet over her before she can struggle out of the crevice: the egg she is hatching is a rich green, spotted with black: both bird and egg are in my cabinet: the eggs of several more ringed birds we find to be the green varieties. The ringed guillemots occupy the same ledges, breeding promiscuously with the common guillemot. The proportion of ringed guillemots is about one in twenty.

As I want a few rock birds for stuffing, to imitate a rock breeding-station as much as I can, I call Mac, who stands under a sloping face of rock, and fire at several birds, which he catches as they fall down, and in this way procure six or eight. We could sweep whole ledges of birds into the water, but not one of them could be picked up, and to shoot breeding birds for mere sport seems to me inhuman, cowardly and cruel.

The sun is sinking out of sight, blushing that all his warmth should fail to produce any tree-life on these barren, storm-tossed islands, bathing the cold rock with rosy light and glorifying the myriad sea-fowl till each glows with the purest rose-colour. The wind has sunk to rest, leaving, afar off, dark masses of clouds, through which the heights of Rum and the splintered peaks of Skye rise to bid the sun good night and catch his last warm rays. As the smoke from my gun floats up, the whole air seems alive with birds; the echo is yet volleying from rock to rock: through the sound, and overpowering it as it dies away, burst out the screams and cries and demon laughter of the sea-fowl, filling the air with sound. I again fire. Bang! as the echo touches the opposite rock the puffins shoot into the air from their burrows, and flicker straight down into the sea; the razorbills above me seem to *fall* into the sea—they shoot past so swiftly that the eye cannot follow them in the maze of birds; the guillemots beneath throw themselves off the ledges, and plunging into the waves dive out of sight. On rocks opposite, round the head of the bay, the guillemots and razorbills throw themselves into the air, and sweeping down almost touch the sea, then rising they fly round and round, backwards and forwards, their legs spread out wide apart and their small wings flickering. The kittiwake gulls rise from their nests in alarm, and hover round me, densely crowding, anxiously watching me, clamorously, pleadingly wailing, with soft flute-like notes, “kittiw—e—a, kittiw—e—a,” flying so close that their pale slate-blue, black-tipped wings, almost brush

my face. The maze of birds, when they have been disturbed, at a rock station is something overwhelming: the air seems choked with a seething whirl of birds, and the head and eye are so bewildered that one turns quite giddy, and is fain to hold on and lie down in a cleft of rock. The air just around seems so full of whirling wings for a few moments that one would wonder the birds did not strike against one another, for as the report touches the rock and rolls along its sides they seem to shoot off the ledges all together in a long line; but I see that a great number are still sitting on their eggs; it is only the males and the females with new-laid eggs which have flown off. High above the maze of birds, see, hang the robber gulls, the lesser blackback and the herring gulls! from the stacks among the white sea-foam, from the grassy islets, their lonely home, here they come! hanging over my head, crying "og—og—og—og," then swiftly, silently, roaming the face of the precipice for unprotected eggs; rich will be the feast, and many a sad cry will go out over the waters to-night from the sea-birds. And swiftly along the rock-sides on which the clouds of birds are gradually settling, see the gray and black "hoodie"—that hated bird!—quickly running the gauntlet among the mobbing gulls and rock birds, who buffet and mob him, but, quick of wing, he slips between, and the egg of the kittiwake he will impale and carry off, and the hard egg of the guillemot he will brush off with his wing to break it, and gorge on the half-hatched mess.

When the storm-cloud of birds is thickest, and the air is darkened and clogged with whirling wings, they *seem* to have a rotatory motion, all slowly circling round, but the flight of the heavy rock birds is so straight and rapid that they appear to keep more by themselves, while the kittiwake gulls lightly flicker about in thick flocks. Far beneath, on the waves, the sea is alive with razor-bills, guillemots, puffins and kittiwake gulls: the razorbill auks are sitting in strings and circles, lazily floating: some are diving, very many splashing along the surface; these are most likely females, which generally fly down to the sea to clean themselves from the horrible parasites which infest their foul ledges, while their lords stay at home to guard the eggs from the robber gulls and hoodie crows. The puffins are diving and floating and splashing about singly, their smaller size and red beak and legs marking them from the others. The kittiwake gulls, which do not dive, are sitting on the water or

lightly paddling about in groups, and the low lion-shaped rock beneath me is thickly covered with them. In their flight, also, one can distinguish at a glance the difference between the razorbill and the guillemot: the head of the razorbill auk seems thicker and blunter, owing to its thick bill; it has more white on the side of the neck, and moreover has a habit of rolling or turning a little to one side, so as to present at one time the breast, and at another the back, to our view.

And now the sea-fowl are gradually settling to rest, as we gather our spoil—five or six heavy birds slung over my shoulder from the gun, and pockets full of eggs, which the slightest bump against the rock would smash. Mac has an old shirt loosely tied round his waist, filled with eggs, all round his body, so that the slightest slip or touch against the rock-side and an indescribable “squelsh” of eggs would be the result. We slowly and cautiously toil up the rock-face, creeping through slits of rock, wriggling along over hanging places, balancing ourselves along the ledges, taking a few birds at a time over the more difficult places; slowly we ascend till we reach the place where we left my brother: we find him with several puffins, which increase our load.

And slowly the darkness is stealing over the sky, the last rosy blushes have long since faded, the wind has sunk to rest, and nought is heard save the sob of the wavelets against the rock, the muffled thunder of the waves in the caverns, and the cries of the ever-wakeful sea-fowl as they settle down, each on its own egg or nest—the one little spot which for a few weeks chains those wandering, restless spirits, the rest of the year being spent in wandering far along coast and sea—here is their home and rest! Far, far across the waste of ever-moving waves, more than fifty miles off, a speck of light is shining calmly, brightly, in the midst of miles of sunken treacherous rocks and passionate waves, and alone looking calmly down on the the troubled sleepless sea: the mother of the tides shows her crescent face, timidly peeping out of the dark thick clouds which have settled down over the splintered “Coolins” of Skye, her silvery beams lying on the restless sea in a quivering thread of light long drawn out; and the stars are peacefully shining down, and in the north-west the spirit of departing day yet lingers in clear holy light behind the gloomy hills of Mingalay. The top of the precipice is gained, and the glare of the lighthouse floods the air, casting a lurid light on all around, as we walk under the cross at the entrance of the buildings, and safe inside

the comfortable walls of the lighthouse forget the perils of rock-climbing.

THEODORE C. WALKER.

Erratum.—In ‘Birds of the Outer Hebrides,’ Chap. II. (S. S. 2113, lines 18 and 19), for whinchat read wheatear.—T. C. W.

(To be continued.)

NOTICES OF NEW BOOKS.

‘*Narrative of a Spring Tour in Portugal.*’ By the Rev. A. C. SMITH, M.A. London: Longmans, Green & Co. 1870. 220 pp. post 8vo.

A nation swoln with ignorance and pride,
Who lick yet loathe the hand that waves the sword
To save them from the wrath of Gaul’s unsparing lord.

But whoso entereth within this town,
That, sheening far, celestial seems to be,
Disconsolate will wander up and down,
’Mid many things unsightly to strange e’e;
For hut and palace show like filthily:
The dingy denizens are reared in dirt;
Ne personage of high or mean degree
Doth care for cleanness of surtout or shirt,
Though shent with Egypt’s plague, unkempt, unwashed; unhurt.

BYRON.

THERE is scarcely a name more familiar to the readers of the ‘Zoologist’ than that of the Rev. Alfred Charles Smith, and certainly no contributions to its pages have been more agreeable and acceptable than those which have emanated from his pen. This narrative, unlike his communications to this journal, contains but a modicum of Natural-History information, being almost exclusively devoted to descriptions of the scenery admired and institutions visited. Mr. Smith’s remarks, *en passant*, somewhat take us by surprise, because at variance with preconceived and perhaps not unprejudiced conclusions; for instance, he writes of Lisbon thus:—“As we wandered through the handsome streets and admired the elegant buildings, the squares and public gardens, we simultaneously exclaimed that we knew no foreign town which had such a general air of cleanliness, and we were agreeably surprised to find how remarkably bright and fresh and sweet the

whole city appeared to be. Subsequent observation only corroborated these first impressions, and I now unhesitatingly declare that no town of southern lands, not even Turin, which in some respects it resembles, presents a cleaner, fairer appearance than the much-maligned city of Lisbon."—p. 19. This is penned by the author, not simply as the result of personal experience, but as a contrast and antidote to Lord Byron's celebrated description, quoted above. Again, he seems equally disposed to disparage Cintra; his notes on which "terrestrial Paradise" he prefaces in these words: "In the last chapter I was at issue with Lord Byron in regard to the general character of the Portuguese: not less do I dissent from what appears to me his most exaggerated praise of Cintra."

Not only has Mr. Smith a strong feeling in favour of Portugal, but also, and perhaps necessarily, of the Portuguese; and he loses no opportunity of exalting them at the expense of their neighbours in Spain, whose inferiority is set forth in contrast on every convenient occasion. I have no means of judging between opinions so decidedly opposed to those which have become conventional, neither has the 'Zoologist' any business with aught beyond the Zoology of this work; and this is comprised in three passages, all of which are instructive: the first refers to the Museum at Coimbra, and is given verbatim below.

"I had heard that the Museum of Natural History was of superlative excellence; indeed Murphy describes it as 'inferior to few in Europe;' so that my expectations were raised to a high pitch; but when I came to examine the zoological department I was woefully disappointed. There is doubtless a large collection of Mammalia, birds and reptiles, but it is a collection ranging over the whole world, and rich in no single class; not even in the productions of the Brazils and Azores, for which Portugal has of course superior facilities. And then the specimens generally were so miserably set up as to be mere deformities and ghosts of the animals they represented. Of birds there were very few deserving of notice, and for the rarer European species, which one might expect in this southern corner of the Continent, I looked in vain for any examples; indeed, *Aquila Bonelli* and *Porphyrio Veterum* were the only real Portuguese rarities which the Museum contained; and there was not even a single specimen of *Otis tarda*, *Cyanopica Cooki* and *Turnix campestris*; none of which are by any means rare in this country. Passing on to other rooms, there is undoubtedly an excellent series

of geological specimens, and the museum is rich in Mineralogy, and still more so in Conchology. Moreover, there is evidently an active spirit of research, and a determination to increase the collections, kindled amongst the directors, fostered probably in no slight degree by emulation of the rapid strides in advance which the museum of the capital is making every day under the active superintendence of Professor Barbosa du Bocage. Then, the building furnished by the University is all that collectors could desire, and ample space is provided for the several departments; so that, in all likelihood, the museum of Coimbra will be in a short time very considerably increased; and with the advance of scientific taste, we may hope that most of the wretched and grotesque deformities which at present represent the various branches of the animal kingdom will be abolished, and more correct specimens be substituted in their stead. For certainly from the present examples the student in Natural History could carry away nothing but erroneous notions; and as to anatomical structure, that must have been wholly ignored, and lost sight of by those who arranged the collection as it now stands.”—p. 112.

The second quotation I make relates to the lofty and rugged mountains of Gerez, which are allowed to form the wildest, the most inaccessible, and most romantic portion of the kingdom. “There are no guides through these inhospitable regions, neither are there inns, or châteaux, or human habitations of any kind where the traveller can procure rest and refreshment. He must be a practiced and enthusiastic mountaineer, and possessed of an adventurous spirit, who cares to push on amidst these unfrequented mountains and explore their almost unknown heights.” Our traveller did not so explore them, but he gives the following brief sketch of their inhabitants.

“To the sportsman, however, and, above all, to the naturalist, who is strong and hardy enough to scorn all creature comforts, and to brave the elements, and delights to rough it in the true spirit of a mountaineer, these untrodden wilds must be quite enchanting. For here is the home of the wolf, which is still very abundant in Portugal; so numerous, indeed, in some parts of this country, that the inhabitants find it quite impossible to keep sheep; and of the depredations, ferocity, and even boldness, of this destructive beast, we heard many accounts from those who had encountered it, and in the museum at Coimbra we had seen several gigantic specimens from these mountains. One gentleman recounted to us how he had been followed in winter by one of these hungry animals, which drew nearer and nearer,

and evidently sought to take him at a disadvantage; but by facing round suddenly, and showing a bold front, he at length succeeded in scaring the creature away. This was corroborated by another gentleman, who was pursued on one occasion in Spain during a snow storm by a pack of five or six, and who thought himself fortunate to escape by taking refuge in a *venta*, which chanced to be near the spot. Amidst the mountains, and in the valleys of the Gerez, also dwells the wild boar, which is the prince of ground game in Portugal, as the bustard stands at the head of the feathered list, and of which we had heard many a hunting exploit, and whose shaggy forms and formidable tusks we had also admired at Coimbra. One of our informants assured us he had killed several which had weighed over twelve score pounds: they will run at great speed for ten or twelve miles, but in Portugal they are never followed by mounted sportsmen as in India, but are simply roused from their retreats, and shot. When wounded and at bay, they are not to be approached by dog or man with impunity, for the wounds they inflict with their long, sharp tusks are often so severe as to cause the death of the rash assailant, whether canine or human. Another wild animal which inhabits these desolate mountains is the southern or pardine lynx (*Lynx pardinus*), which must not be confused with the common European lynx (*Lynx virgatus*), which I have seen brought down by a hunter from the maritime Alps above Nice; but this is a far more handsome animal, spotted like a leopard, and withal a savage cruel beast, partaking of the nature of the wild cat, but even fiercer as well as larger and stronger than that daring marauder. Here, too, as I am informed, may be occasionally found the beautiful and graceful genett (*Genetta tigrina*), an active, supple-limbed, nocturnal marauder, which stealthily surprises its victims on the ground and on the trees, where it is equally at home. But the great prize, *par excellence*, of the wild mountains of Gerez, which the sportsman will risk life and limb to obtain, is the ibex, wild goat, bouquetin, or izzard (*Capra Ibex*), which may be described generally as a sort of reddish-coloured chamois, the most wary and the most active of its tribe, which frequents the nearly inaccessible heights of the mountains, and is as difficult to hunt as the chamois of the Alps. There was also a rumour that an occasional specimen of the mouflon, or large wild sheep, might be met with in these mountain solitudes; but after diligent inquiry, I am obliged to conclude that the report had no foundation in fact; and that if this animal exists in the Peninsula at all, it is confined to the wilder portion of the Pyrenees, to which the

bear, once so common in northern Portugal as well as Spain, is now restricted.”—p. 151.

I now proceed to what is to me the most interesting portion of the volume, that which relates to the birds, and this must be prefaced by an explanatory introduction from Mr. Smith's own pen.

“I have already called attention,” says Mr. Smith, “to the diversified scenery of Portugal; and it may be supposed that a country intersected by rivers whose banks are clothed with the most luxuriant vegetation, abounding in wide-extending forests, as well as vast uncultivated heaths, or sandy plains, covered with brush, with an open coast extending from north to south, washed by the waves of the wide Atlantic, furnished here with rugged rocks and there with cultivated fields, and all lying under a climate which for unclouded brilliancy of sun and almost tropical heat, can scarcely be matched in any other district of Europe, must possess an avifauna which if properly investigated would yield a rich return to repay the exertions of the inquirer. Moreover, it is not alone in rare species that the ornithologist would expect to reap a valuable harvest, but in the differences and shades of colour, and in the variation of size, which even the common birds offer in different localities, and more especially under different climates, that he would look for interesting results in this extreme south-western corner of Europe; and to this point my particular attention was directed before I set out on my journey. Bearing this in mind, and resolved not to overlook the commonest species, I took every opportunity during my few weeks' tour in Portugal, to examine all the birds which came in my way. To this end I wandered through plains and forests, by banks of rivers, and amidst the rocks and mountains, armed with double-barrelled gun and double field-glass; the latter, I take leave to add, quite as serviceable to the student in Ornithology as the former. I also frequented the markets in Lisbon and other towns every day at early morning, and overhauled all the feathered *bouquets* composed of the smaller birds of all ranks and orders, which seem so attractive to continental epicures generally. Moreover, I visited frequently the excellent Museum at Lisbon and the indifferent one at Coimbra, already described, which, so far as I can ascertain, comprehend all the Natural-History collections of the country, and these I carefully examined, verified and catalogued every specimen asserted to have been captured in Portugal. Lastly, I was fortunate in meeting with many intelligent men, who were not only willing to impart valuable information, but were able to do so in a

language which I could comprehend ; amongst them I must especially mention Dr. Suche and Professor Barbosa du Bocage, the former a fellow-labourer of Vigors, an experienced collector and preserver of some of the larger mammals and reptiles in South America ; the latter the scientific and indefatigable director of the Museum at Lisbon, with whom I had many pleasant interviews, and who pointed out to me the more remarkable objects in the national collection, which, thanks to his exertions, is already assuming considerable importance, and must, in the course of a few years, if the present admirable system is continued, become extremely rich, not only in home specimens, but in the productions of the Portuguese foreign possessions and of the Brazils. * * * *

“ In an article which I published in the ‘ Ibis ’ (New Series, vol. iv. pp. 428—460) I enumerated 193 species as identified by myself either in the flesh or in Portuguese collections at Lisbon and Coimbra ; I also made incidental mention of 57 others as confidently asserted to be well known in Portugal by those on whose accuracy I could rely. This made a total of 250 ; and I added that the catalogue was still imperfect, and only laid claim to be an outline, the details of which I trusted would shortly be followed up by some competent observer. But already, in a recent review of my ‘ Ibis ’ article lately published in a scientific periodical, Professor Barbosa du Bocage has been so good as to add a very valuable supplement. * * * We have now then, to our former catalogue of 193 verified Portuguese species, to add a supplementary list of 42 no less carefully determined, which swells the list to 235 ; and if we reckon those of whose appearance in Portugal we have been assured, though hitherto they have not been positively identified, we arrive at a grand total of 256 species.”—p. 183.

The most recent list of British birds of which I am cognizant is that published by myself as an appendix to ‘ Montagu’s Ornithological Dictionary ’: it contains 381, and four additional species have been discovered since 1866, the date of its publication ; thus the British has a clear majority of 129 over the Portuguese list. But there is another point to be mentioned that considerably increases the discrepancy : out of the 256 birds inhabiting Portugal 32 European species appear in the Portuguese which do not appear in the British list ; hence the actual proportion of nominally British birds that have occurred in Portugal is only 232, or little more than half. How is this to be accounted for ? Let us first take into consideration those American

species which accident or the cupidity of dealers have brought into our museums: for instance, the swallowtailed kite, the redefied flycatcher, the American whitewinged crossbill, the redwinged starling, the goldenwinged woodpecker, the downy woodpecker, the yellowbilled American cuckoo, the belted kingfisher, the American purple martin, the American martin, the passenger pigeon, the Virginian colin, the American bittern, the Eskimo curlew, the American stint, the tree duck, &c. These species ought never to have been admitted into the British list, and having been admitted should be expunged as speedily as possible. Then, again, it must be admitted, indeed, more than that, it must be asserted, that the observers in England are ten to one compared with those in Portugal: the 'Zoologist' has not only recorded observations, but has created observers; before its existence probably the sand grouse, the waxwing, the oriole, paid us occasional visits, as they have since, but there was no record; the observers, and therefore the observations, were wanting. It is indeed a *curiosity* to read such records of *curiosities* as those which formerly saw the light. "Non-descript bird," "rara avis," "extraordinary occurrence," "immense bird," are amongst the least sensational announcements that we find authenticated by such signatures as "Verax," "Veritas," "Vindex" and "Judex." Now happily chapter and verse is required, sought and obtained for every assertion; and should they not be forthcoming the statement itself receives but little favour.

On the other hand, the ornithologist on the Continent has an advantage over his coadjutor in Britain, in the gastronomico-ornithological taste of the inhabitants: nothing from a cormorant to a tomtit seems to come amiss to a Russian, a German, a Frenchman, an Italian or a Portuguese. Hence the feathered *bouquets* suspended in the shops contain occasional rarities, just as the sweeping of a barn-floor must comprise grains of good corn, although often concealed by the superabundance of chaff.

Everything considered, and all the advantages and disadvantages of each country brought into full account, still I cannot find sufficient reason for the discrepancy I have pointed out. The whitetailed eagle occurs not only in Britain and the north of Europe, but throughout Russia, Asia Minor, and the islands of the Mediterranean; the little merlin breeds in Norway, Sweden, Denmark, Austria and France, the islands of the Mediterranean, and in Palestine, Egypt, Abyssinia and at the Cape of Good Hope; the honey buzzard is found throughout Europe, and has been noticed in the islands of the Mediterranean on

its southward passage towards Africa; the familiar redbacked shrike goes still further south, even to the Cape of Good Hope; the redstart is abundant in France and Spain on land immediately adjoining the confines of Portugal; the grasshopper warbler, according to Yarrell, inhabits Central and Southern Europe; the sedge warbler is common in France, Spain, Italy, and the islands of the Mediterranean; the yellowhammer, more than visiting, is resident in every country of Europe; "the tree sparrow is rather a common bird in France, Provence, Spain, Italy, Sicily, Malta and Africa;" the lesser redpole is found everywhere from the North Cape to the extreme south of Sicily; the twite occurs in Norway, Sweden, Russia, France, Spain, Italy, Greece, Syria and Egypt; the sand martin is a summer visitant in every part of continental Europe, and a resident in the islands of the Mediterranean: nevertheless, these familiar birds and many others are of necessity excluded from the Avifauna of Portugal, because they form no part of the ornithological *bouquets* that adorn her shops; because they escape the notice of such accomplished resident naturalists as Dr. Suche and the Professor Barbosa du Bocage, and such lynx-eyed visitors as G. F. Mathew and A. C. Smith; and finally because they find no place in the vaunted Museum of Coimbra or the far superior one at Lisbon.

I heartily thank Mr. Smith for this contribution to our Science; and sincerely do I hope he will be remunerated by increased reputation, if not by pecuniary emolument, for the trouble he has taken to render his account complete and truthful.

EDWARD NEWMAN.

'*Birds of Marlborough, being a Contribution to the Ornithology of the District.*' By EVERARD F. IM THURM. London: Simpkin and Co., Stationers' Hall Court. 1870. 164 pp. demy 12mo.

THERE is so large an amount of modesty and good feeling displayed in this little volume that criticism is disarmed; take, for instance, the introductory paragraph: "It is only now, when I feel at last forced to render an account of the work I have undertaken, and have now completed, that I feel fully aware of its many deficiencies. I have, however, one consolation; I feel that I have done my best to render a tribute of gratitude to the school where I passed so many pleasant hours, and to the Natural History Society of that school to

which, and to which alone, I owe the formation of tastes, which now prove a continual and endless source of pleasure and occupation to me. In the hope that it may prove useful to them I have undertaken this 'labour of love.'"

The author then proceeds to explain the objects and character of the Society to which he alludes. "For the information of those, either in schools or in private life, who may feel an interest in such societies, a slight sketch of the one in point may not be out of place here.

"In April, 1864, two or three members of the school, who had a taste for Natural History, banded themselves together, electing the Rev. T. A. Preston as their president, and agreeing to meet on certain nights for consultation. Difficulties at first cropped up thickly, but scientific energy, aided by the firm support of the Rev. G. G. Bradley, in time overcame these. The Society grew, and a year and a half after its formation published its first report. The career of the still small but thriving Society brightened more and more. About the middle of 1866 the College provided a room as a museum. From that time to this no cloud of any importance has appeared on the Society's horizon. It now publishes its reports half-yearly, numbers more than half a hundred members, and its collections have outgrown its museum. Such is the Society to which I owe so much, and which I have now so poorly attempted to repay a few of its benefits."

It would be equally unfair to the author and to myself to conceal the fact that there are many deficiencies in the book, and some evident mistakes, such as arranging the goatsucker, jack snipe, wigeon, woodcock, teal and hawfinch with "*rare and occasional* visitors," although of the last named the author admits his knowledge that it is commoner at Marlborough than in most places, and he must know that the others are as constant and as regular visitors as are the autumn and the winter. I will not dwell on the supposed occurrence of curlews' eggs on Aldbourne Downs, because this evident mistake is copied from another source, and refers to the *stone* curlew (*Ædicnemus crepitans*) and not to the *true* curlew (*Numenius arquata*). The application of the local name "sea woodcock" to the dabchick (*Podiceps minor*) is also without doubt a copied mistake; this name has repeatedly been applied to the godwits, and those who have seen these long-billed birds cruelly caged in Leadenhall Market, as I have done this very morning, and thus had an opportunity of close inspection, will perceive at once how applicable is the name.

I may remark, in conclusion, that the very paucity of species enumerated, and there are only one hundred and twenty, is in itself an evidence of the conscientious manner in which the list has been prepared: nothing could have been easier, and at the same time nothing could have been more useless, than to have added fifty more species without any positive evidence of their occurrence.

EDWARD NEWMAN.

Arrival of Migrants.—Since I last wrote I have noted the appearance of the following summer birds in the neighbourhood of Plymouth:—April 15th, cuckoo; 16th, tree lark; 17th, puffin; 20th, whitethroat and blackcap; 21st, yellow wagtail; 23rd, sand martin; 25th, sandpiper (common); 26th, swift; 28th, house martin.—*J. Gatcombe; Stonehouse, Devon, April 30, 1870.*

Arrival of Migrants in the Isle of Wight.—April 3rd, wood wren (or willow wren) seen on the upper branches of one of the lofty elms at Bonchurch; 5th, wheatear first observed in this neighbourhood; 6th, swallow seen; 17th, cuckoo first heard; 23rd, nightingale heard at Luccombe. The swallow and martin were last seen here in November.—*Henry Hadfield; Ventnor, Isle of Wight, May 11, 1870.*

Note on Montagu's Harrier.—This harrier may be regarded as a species quite as plentiful as the common or hen harrier of late years in the Land's End district. We get them in Cornwall in all stages of plumage, more frequently in the immature than in the adult state, with the under parts having an uniform fawn-colour. An adult male and female were shot on the property of Mr. George Williams, near the Lizard, this week, and with them there was a second female, a variety, with an uniform sooty black plumage throughout, the second of the kind I have noticed: the tone of this colour is so intense that the bars on the tail are only just perceptible: both the females were far advanced in the development of their eggs. The adult female, as also another I had some time since from Scilly, has the breast yellowish white, with rusty red linear oblong blotches, the general colour of the upper parts wood-brown, but on the wing-coverts when closed there is a broken patch of yellowish white. The dark bird was caught in a trap, first baited with a rabbit or something of the sort: this attracted her, but she continued to hover about without pouncing: the keeper thought that a viper would be a more successful lure, and having killed one placed it on the trap: the bird on seeing it immediately pounced on the reptile and was captured. I mention this to show that in the predatory habits of our Falconidæ, and what are deemed "vermin," results beneficial to man may be traced, as well as the contrary. Ought we not to pause before we try to exterminate every creature that we deem unexceptionably mischievous?—*Edward Hearle Rodd; Penzance, May 4, 1870.*

Barn Owl laying Eleven Eggs.—A pair of barn owls (*Strix flammea*) have for eight or ten years past reared their young in a building of mine here. They usually lay from six to eight eggs, in batches of two each: those first laid are sat upon at once, and whilst incubation goes on other eggs continue to be laid at intervals. The first young ones are hatched long before those in the eggs last deposited, and when all are hatched the family consists of various sizes, from the baby owl upwards. There is nothing novel

in all this; but what I wish now to mention is that this year eleven eggs have been laid—a number I have not seen recorded before.—*James Murton; Silverdale, Carnforth, May 12, 1870.*

Supposed Occurrence of the American Mottled Owl in Kent.—Lord Clifton says, in the 'Zoologist' for May (S. S. 2138) that the "general colour" of the owl seen by him was reddish brown. Wilson tells us that *Strix nævia* has "the upper part of the head, the back, ears and lesser wing-coverts dark brown, streaked with black." Lord Clifton remarks, "and to crown all, it had two small stumpy tufts—I can hardly call them ears." Whereas Wilson says, "Horns" (as they are usually called) "very prominent, each composed of ten feathers, increasing in length from the front backwards." Lord Clifton observed that "the face was much redder than the breast." But the mottled owl, according to Wilson, has the "face whitish, and both breast and belly white, variegated with black and brown streaks." Your correspondent concludes with the remark, "What else could this be but *Strix asio*?" Why? To my mind it might be *Strix passerina*, of the same size (within half an inch) as *Strix nævia*, and answering fully as well the description given of the owl seen at Cobham. Though the passerine owl has not the "stumpy tufts" spoken of, its bristle-tipped plumelets are elongated, and it has, according to Temminck, "les parties inferieurs d'un blanc roussâtre."—*Henry Hadfield.*

Late Stay of the Fieldfares.—Up to the 6th of this month the fieldfares were still with us. I had constantly watched a flock of about twenty for some years: they assembled daily in some tall trees adjoining this property, but I expect they have now taken their departure, as I have watched for them for the last few days, but they are not in their old haunts.—*Edward Sweetapple; Eynsham Paper Works, near Oxford, May 11, 1870.*

Colour of Cuckoos' Eggs.—I was only yesterday reading up, in your valuable journal, all the notices on the cuckoo, as well as those in 'Nature' and 'Science Gossip.' There is one point, *viz.* the persistency in form and colour of the eggs as laid by one particular bird, and I am much inclined to believe, with Mr. Harting, that the female has no power to vary the colour or shape or size of her egg to suit circumstances. I believe that she exercises discretion in the choice of the nest into which she is about to deposit her egg, and that she selects the situation with reference to the colour of the egg that she is in the habit of laying. I also fully believe that she puts in the egg with her beak, having previously laid it conveniently near. I have a fine series of the eggs of the Egyptian vulture (*Vultur percnopterus*), varying in colour from white to dark red, and I mention this as an extreme case, yet I believe that each bird in this case lays her eggs nearly of one colour. I am well acquainted with the pair of these birds which yearly inhabit the church-tower at Etawah, N.W. Province India, of which Mr. Hume speaks in his 'Notes on Indian Birds' (Part I. Raptores), and I have taken their eggs: they are more richly coloured than any others that I have ever seen, and they are laid every year the same. At least I can speak certainly for the produce of several. Other nests I have marked as only producing white or very faintly spotted eggs of the same bird. It is true that one often finds very different eggs in the same nest; but this is quite the exception, and not the rule. The inquiries of Dr. Baldamus relative to the colour of the eggs all point to the same result, and it is in confirmation of them that I have penned this note, as it appears to me to bear on an important point in the discussion. I only possess five eggs of the cuckoo, and these present three distinct types, *viz.* that of the nightingale, the wagtail

and the lark, and these are so various that the attention of the veriest tyro cannot fail to be arrested and his interest excited in the discussions relative to this bird.—*C. Horne; Upper Norwood, May 18, 1870.*

Migration of Swallows.—It may interest Mr. Smee to know that the sand martin is generally the first of its family to arrive here—say the first week of April; the swallow next, often as early as the 8th—12th; house martin about the first week of May; swift early in May.—*H. Blake-Knox; Dalkey, County Dublin.*

Blacktailed Godwit in Summer Plumage at Scilly.—I have received a specimen of this godwit from Scilly to-day. There is nothing at all remarkable in its plumage for brightness of colour on the throat, breast and belly, like its common congener the bartailed godwit, which I have always observed carries a fine unsullied bay-colour on its under parts at this season of the year; but in the blacktailed godwit there is nothing beyond a dull dirty reddish brown, which is confined to the breast only.—*Edward Hearle Rodd; Penzance, April 30, 1870.*

American Wigeon and Garganey on the Taw.—I hear from Barnstaple of the occurrence of the American wigeon on the Taw. A specimen of this species, supposed to be a young mallard, was shot about the 20th of April. Another garganey had been also brought in, which had been shot on the river about the same date.—*Murray A. Mathew; The Vicarage, Bishop's Lydeard, May 3, 1870.*

Slavonian Grebe in County Dublin.—I see so many notices of grebes in the May number of the 'Zoologist' that I must add my quota to the number. First: early in September I saw a grebe in breeding plumage in the "Smelting-house Pond," Ballycoris: this bird was one of the intermediate grebes larger than the little, smaller than the great crested, the wings had a conspicuous white patch (eared?). Little grebes are to be seen in this pond. The eared grebe has been seen in this county in summer. In December I procured a fine specimen of the Slavonian in "dusky grebe" plumage. In March a second Slavonian in same plumage, but with the rufous head-feathers appearing. I have both these grebes.—*H. Blake-Knox; Dalkey, May 1, 1870.*

Garganeys, &c., near Sheerness.—A friend of mine shot a fine pair of garganeys, about the middle of March last, near here; and also about the same time a magnificent pair of hooded mergansers, the male of the latter species being in splendid plumage. During the cold weather in February I saw a flock of some sixty snow buntings close to the town, and another friend of mine shot several specimens of the purple sandpiper, two of which he kindly presented to me.—*Gervase F. Mathew; Royal Naval Barracks, Sheerness, May 12, 1870.*

The Great Auk from Funk Island.—I have only just received the March number of the 'Zoologist,' in which appear Professor Newton's remarks upon my communication respecting the foot-note at page 1855 of the issue for October, 1869. I have no desire to continue the controversy any further, as my only motive for troubling you, was to disprove that statement, which it must be acknowledged tended to exhibit me as the recipient of what really should have been another's, a position which even the sagacity granted me by Professor Newton fails to discover an agreeable one. May I be allowed to repeat that, *according to all the evidence I am in possession of*, that statement was incorrect, and therefore I trust that gentleman, whose familiar name I hold in the highest esteem, will perceive that my note, although apparently unceremonious in tone, was not intended to reflect upon him so much as the author of the paper, who I think, on consideration, must acknowledge that his foot-note,

which has given rise to the controversy, was slightly detractory in regard to the pleasure afforded me in presenting the specimen for the benefit of Science.—*J. Matthew Jones ; Institute of Natural Science, Halifax, N.S., May 3, 1870.*

PS.—Mr. Reeks, at page 1856 of the 'Zoologist' for last October, in commenting upon the Bishop of Newfoundland's letter to me concerning the position the auk mummies were found in on Funk Island, observes, "If the specimens were really embalmed or entombed in the ice it is right to infer that they were not originally Funk Island birds, but that they died in high northern regions, and *there* became entombed in ice which eventually drifted on to Funk Island." Mr. Reeks entirely mistakes his lordship's meaning if he thinks it is intended to convey the idea that the ice alluded to was berg ice from the north. It was original Funk Island ice, or rather *guano ice*, if I may use the term, which had formed in a cleft facing the north, on which the sun never shone, in which the birds were found; and if he thinks that it is impossible for ice to remain unmelted in such a position through the short summer of that northern latitude, I think his astonishment will be great indeed when I state, on excellent authority, that there are particular spots known in this province of Nova Scotia, which is still further south, where ice remains in its natural unmelted state from one winter to another. So the term "ice which never melts" was I think italicised prematurely. I am in hopes that shortly a visit will be made to the island in order to set at rest the question as to the existence of other specimens. As I have only just returned from a trip to the eastern part of this province, and am in the midst of preparations for a start to-morrow through the forest to the westward, I have no time to allude to other portions of Mr. Reeks' "Newfoundland Notes" which I think require notice.—*J. M. J.*

Plumage of the Adult Male Merganser.—I have just read Mr. Rodd's note on the plumage of this bird (S. S. 2141). I have frequently met the merganser in full (so called) breeding plumage in winter; old males are always so in January, as are goosanders, shags, cormorants, ducks, &c. I have found guillemots and redthroated divers assuming "breeding" dress in December. Having found both these birds changing from breeding to winter dress in November, I cannot understand the change *vice versa* within six or eight weeks. It is a difficult subject to unravel, but I think birds killed in winter with full breeding dress must be very old birds that have not moulted in autumn, or, as Mr. Rodd proposes, permanently retain this plumage. That adult guillemots change from September to November from the brown to the white head I have ample proof, having killed the young in down swimming with the moulting female when not another bird was in sight. But birds that commence assuming the apparent breeding dress in December I am inclined to think young birds for the first time attaining this dress (I do not think they would breed the following spring), for this reason, that the "autumn" moult, or a large part of it, takes place in the summer some months earlier than the real autumn moult of the adult, and for this reason the "spring" moult commences earlier; that is, in December to January. These remarks do not apply to the mergansers, which I believe retain the "breeding" dress when once assumed,—that the crests of these and allied birds are a spring and summer appendage I have no doubt,—falling or wearing off during the breeding season, and then not assumed till late in winter or early in spring. Like many land birds, as the fringes of the feathers abrade, the plumage becomes clearer, and in spring a more *lusty* pigment is driven through the plumage, as it is into the eyes, bill

and feet. Young mergansers and ducks in first winter are very similar to the female, assuming the following spring a dress analogous to the old male, but neither so pale nor so decided; not so pure for these reasons—it wants lust (I do not think wild ducks, &c., breed their first spring), which deprives it of that lustre and *rivalry*,—I cannot describe my meaning by any English word,—which I fancy so much helps to beautify the plumage of male birds in spring, more especially those that are polygamous; also, being new, the fringes are deep and heavy, concealing the body-colours of the feather, which in adult birds are exposed. Is it a fact that domestic drakes assume female dress in autumn? It does not occur, or rather it has never occurred to my knowledge, in Ireland, certainly it is not a rule. Some say wild drakes are affected the same way, but I see splendid fully-plumaged birds all through the winter.—*H. Blake-Knox.*

Correction of Errors.—'Zoologist,' S. S. 2121, line 21, for "as in each winter," read "as in early winter." Page 2123, line 30, for "(very true)," read "(very terse)," meaning short and carelessly recorded.—*H. Blake-Knox.*

Notes from Denbighshire.—On the 2nd of April two woodcocks were flushed together in the woods near the house: they made a grunting kind of noise, but I have not been able to ascertain whether they are breeding here. On the 28th I shot a pair of ring ouzels: they had a nest containing five eggs; the female sat very close: they are not very uncommon on the hills near here. On the 29th I observed a number of pied flycatchers, almost all males—I only saw one female: they were not shy. Some short time ago I shot a blackbird, whose prevailing colour was a kind of gray, but the large feathers of the wings were pure white: I had it stuffed. In the winter we were visited by a number of mountain finches: they were in company with a flock of chaffinches: they continued about the house for some days.—*William J. Kerr; Maismer, Denbighshire.*

Ornithological Notes from Taunton.—In December last I obtained a fine male goldeneye, which is uncommon here, and saw two or three tufted ducks. Throughout the winter pochards have been comparatively numerous in the market. I do not remember having seen any last year. On the 9th of March I got a fine male scoter, which had been killed on Curry Moor, some fifteen or sixteen miles from the sea. On the 28th I bought a fine pair of garganeys, in good plumage, and two days afterwards saw a male in the poulterer's shop. On the 9th of April I saw the swallow and sand martin, and heard first of the cuckoo. On the 15th I saw the common sand-piper, redstart and a fieldfare—the last I have seen this year. On the 23rd I saw the common sand martin, the least common of the *Hirundinidæ* here. On the 26th I saw the first swift.—*William J. Chalk; The College School, Taunton.*

Increase of Sea-fowl in the Isle of Wight.—In a row round the Freshwater cliffs on the 22nd of April a good many gulls were seen on and about the face of the precipice: owing to the fog the herring gull only was identified, but I was told by one of the watermen that the lesser blackbacked and other gulls are now assembling here, and that there are more sea and land birds congregating than had been known for many years. They seemingly are aware of their security and freedom from molestation, for though we passed close to the cliffs little notice was taken of us, nor did the herring gulls, as is their wont, rise *en masse* with clamorous and defiant note. The cormorants and guillemots, too, appeared less wild than usual, some coming within shot. A few puffins were pointed out, but I failed to distinguish or identify them through the mist; but that they, as well as the shag, will now breed here there can be

little doubt, and there is reason to hope that the chough will again make these lofty cliffs its habitat. The peregrine, too, may now nest in security, unmolested by gunner, trapper or egg-robber: that one pair is breeding here this season is pretty clear, for on approaching Freshwater from the eastward, and before ascending the Downs, a large hawk, disturbed by our carriage, rose heavily on wing from within the hedge bordering the high road, with a large bird in its talons; that its prey was a partridge there could be little doubt, for in the same field two partridges were seen cowering among the newly sprouting corn. I am rejoiced at the chance protection afforded the peregrine by the new Act, which will greatly increase their numbers, and the same may be said of the raven; the kestrel, too, will be benefited, though in a less degree. It is much to be desired that our common shell-fish should be protected, before the crab and lobster become as scarce as the oyster, for they are now taken in season and out of season, though during summer they are watery, flabby and unwholesome. It is a common saying that the crab should not be eaten when the letter *r* is in the month.—*Henry Hadfield.*

Rare Birds in Wiltshire.—The following rare birds have been lately received for preservation:—A little auk from Gore, near Salisbury Plain; and a rednecked grebe and a Slavonian grebe from G. H. W. Heneage, Esq., Compton Basset, shot at Lyneham.—*J. Grant; Devizes, Wilts.—'Field.'*

Parasite of Fish.—On cleaning a reservoir in which I have a quantity of fish, I found the accompanying parasites sticking to some of the roach and carp, most of them on two roach that were suffering from a disease that attacks them in gray fungous-looking patches, of which they eventually die. Can you tell me what they are?—*Egbert D. Hamel; Tamworth, April 25, 1870.*

[The name of these curious parasites is *Argulus foliaceus*: they are not always attached to the fishes as in this instance, but can swim freely in the water, and are then most amusing and really beautiful objects.—*Edward Newman.*]

Proceedings of the Entomological Society.

April 4, 1870.—A. R. WALLACE, Esq., 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. 117; presented by the Society.
 'Exotic Butterflies,' Part 74; by W. W. Saunders, Esq.
 'Lepidoptera Exotica,' Part 4; by E. W. Janson, Esq.
 'Equatorial Lepidoptera collected by Mr. Buckley,' Part 4; by W. C. Hewitson, Esq.

Election of Member.

Humphry Wm. Freeland, Esq., of The Athenæum Club, was balloted for and elected a Member.

Exhibitions, &c.

Mr. J. Jenner Weir (on behalf of Mr. James Vogan, who was present as a Visitor) exhibited specimens of grain attacked by weevils: from 74 tons of Spanish wheat 10 cwt. of weevils had been screened, and these must have consumed several times their own weight of grain before arriving at maturity: in August, 1868, some American maize was stored, weighing 145 tons; in August, 1869, this was found to be infested with weevils, and 6 cwt. of the beetles were screened out; in December 29 cwt. more were screened out, making a ton and three-quarters in all. Specimens of the weevils were exhibited, and in both cases the depredator proved to be the rice-weevil, *Calandra oryzae*, and not *C. granaria*: along with the weevils were a few specimens of *Stene ferruginea* and of a *Læmophilæus*, the predatory larva of the latter being the natural enemy of the *Calandra*.

Prof. Westwood observed that no description of the larva of *Calandra granaria* had been published: it was comparatively a fatter and shorter larva than *Balaninus*, distinguished from the usual form of Curculionidous larvæ by having two recurved points or hooks at the extremity of the body, and changed to the pupa within the grain.

Mr. McLachlan mentioned that he had frequently noticed the walls of London granaries covered on the outside with *Tinea granella*. Mr. J. J. Weir corroborated this, and added that the London sparrows might be seen to rise at and catch the moths when the latter were disturbed; in fact, the sparrow was acquiring the habits of the flycatcher.

Mr. Howard Vaughan exhibited numerous specimens of *Dianthœcia carpopaga*, showing great variation in colour, all bred from larvæ found near Croydon in 1868.

Mr. J. J. Weir, with reference to Mr. Butler's suggestion of the identity of *Argynnis Adippe* and *Niobe*, exhibited four specimens which had been sent to him from St. Petersburg, one as the typical form of *Adippe* and another as its variety *Cledoxa*, and one as the typical form of *Niobe* and another as its variety *Eris*: the typical form of each had silvery spots on the under side, and these were absent both from *Cledoxa* and *Eris*; but notwithstanding this parallelism of variation, there was no greater approximation to one another in the two varieties than there was in the two typical forms. Mr. Albert Müller remarked, however, that what was regarded in Switzerland as the typical form of *A. Niobe* did not possess the silvery spots on the under side.

Mr. Albert Müller (in reference to the note in Proc. Ent. Soc. 1869, p. xxv., and 'Zoologist,' 1870, p. 2027) read the following extract from a letter received from Mr. H. F. Bassett, of Waterbury, U. S. A., on the odour of Cynipidæ:—

"You speak of the peculiar odour of certain species of European gall-flies. A similar odour is strongly apparent in three sub-apterous species of *Cynips* that I have reared from the galls, namely, *C. pezomachoides*, *Osten-Sacken*, *C. forticornis*, *Walsh*, and *C. hirta*, *Bassett*; and I find that Dr. Fitch, in the

description of his *Philonix** *fulvicollis*, mentions that it ‘exhales a perceptible odour, resembling that of ants or bees’ (Fifth Report on Noxious Insects of New York, p. 3). I do not remember to have noticed this odour in any of the winged species I have reared.”

Mr. F. Smith exhibited two remarkable forms of Hymenoptera from the Rocky Mountains, the *Masaris vespoidea* of Cresson, and *Pterochilus 5-fasciatus* of Say.

The Secretary exhibited a mole-cricket sent to the Society by Mr. A. P. Falconer, who found it running about the cabin of his daahbeeh on his return from Philæ to Alexandria. The specimen had been compared by Mr. M. Lachlan with the descriptions in Mr. Scudder’s recent paper in the first volume of the Memoirs of the Peabody Academy, and he believed it to be *Gryllotalpa cophta*, the *Gryllus cophtus* of De Haan, figured by Savigny, *Descrip. de l’Egypte*, Orthoptera, pl. 3.

The Secretary read the following note on the spectrum of the fire-fly, extracted from the Journal of the Society of Arts:—

“The spectrum given by the light of the common fire-fly of New Hampshire is, according to Mr. C. A. Young’s observations, perfectly continuous, without trace of lines either bright or dark. It extends from a little above Fraunhofer’s line C in the scarlet, to about F in the blue, gradually fading out at the extremities. It is precisely this portion of the spectrum that is composed of rays which, while they more powerfully than any other affect the organs of vision, produce hardly any thermal or active effect. Very little, in fact, of the energy expended in the flash of the fire-fly is wasted. It is quite different with our artificial light. In an ordinary gas-light, it is proved that not more than

* Query, *Philonips*, not *Philonix*, which is a hybrid, half Greek, half Latin: the author himself gives the derivation, “*φίλος*, a lover; *νιψ*, snow.” Dr. Fitch writes the name of the family *Cyniphidæ*, in lieu of *Cynipidæ*, probably on the hypothesis that *Cynips* is derived from *νιψ*; but query, whether snow enters into the composition of *Cynips*: I always supposed it was a compound of *ιψ*, in which case *Cynips*, gen. *Cynipis*, fam. *Cynipidæ*, are correct. I may add that Dr. Fitch has altered Prof. Westwood’s *Biorhiza* into *Biarhiza*. The latter change is designedly made, for (5th Report, p. 1) the author says, “I suppose this name to be derived, not from *βίος*, life, as its orthography would indicate, but from *βία*, injury, and *ρίζα*, a root, and if so it should be written *Biarhiza*, instead of as we find it in books.” Upon this I may remark that the name may as well be derived from *βίος* and *ρίζα*, in the sense of *living in the root*, as from *βία* and *ρίζα*, in the sense of *injurious to the root*; and even if the latter be the true derivation, I should like to submit, for Dr. Fitch’s re-consideration, whether the remedy (*Biarhiza*) is not worse than the disease (*Biorhiza*), and whether the name should not be written *Biorrhiza* instead of as we find it in books. At p. 16 of the same Report, Dr. Fitch describes a new beetle under the name *Leiopus Querci* (adding that “it is very closely related to the Facetious *Leiopus*”), and at p. 24, a new *Aphis* under the name *Eriosoma Querci*: I believe the word *querci* as the genitive of *quercus* does once occur in a writer on husbandry in the third century of the Christian æra, but query whether it was worth while to have dug out this singularity: why not have been content with the ordinary genitive *quercus*?—J. W. D.

one or two per cent. of the radiant energy consists of visible rays, the rest is either invisible heat or actinism; in other words, more than ninety-eight per cent. of the gas is wasted in producing rays that do not help in making objects visible."

Mr. G. R. Crotch sent for exhibition British specimens of four species of *Dasytidæ*; one being *Dolichosoma protensa*, taken some years ago in the Isle of Wight, and agreeing entirely with Spanish specimens taken at Carthage; the other three belonging to the subgenus *Mesodasytes*, and having a somewhat complicated synonymy. The following note was read respecting them:—

"The old genus *Dasytes* has been subdivided by Mulsant and Rey into five subgenera; all our species, except the rare *D. niger*, fall into the third of these, called *Mesodasytes*, of which three species are described from France, all of which are found also in England. Mulsant's nomenclature is by no means in accordance with Kiesenwetter's, and he seems not to have noticed Kiesenwetter's paper on the Spanish *Melyridæ* in the eleventh volume of the *Berlin Zeitschrift*. Thomson again appears to be at variance both with Mulsant and Kiesenwetter, so that the group is somewhat confused. The synonymy appears to me to stand thus:—

1. *Dasytes oculatus*, *Kies.* (1867) = *coxalis*, *Muls.* (1868) = *plumbeus*, *Ill.*, *Thoms.* (nec *Müll.*)

2. *D. plumbeus*, *Müll.*, *Kies.* = *flavipes*, *Oliv.*, *Muls.* (nec *Fab.*) = *fuscus*, *Thoms.*? (nec *Kies.*)

3. *D. plumbeo-niger*, *Goeze* = *ætatus*, *Ste.* = *ærosus*, *Kies.* = *plumbeus*, *Oliv.*, *Fourc.*, *Muls.* (nec *Müll.*) = *subæneus*, *Thoms.*, *Crotch Cat.* (nec *Schönh.*)

The three species have a considerable resemblance in form and colour. *D. plumbeo-niger* may be known by its concolorous antennæ and legs. The males of *D. oculatus* are distinguished by the large globose eyes, the space between which is much narrower than in *D. plumbeus*: the females are more difficult, but in *D. oculatus* the base of the antennæ and the anterior coxæ are testaceous, while in *D. plumbeus* only the second joint of the antennæ is testaceous, and the eyes are less developed in the latter species. I have received from M. Eichhoff specimens of *D. ærosus*, *Kies.*, which agree perfectly with the common English species, *ætatus*, *Ste.*, which, however, will take *Goeze's* name, *plumbeo-niger*; *Kiesenwetter* appears formerly to have confounded it with *D. plumbeus*. The range of the three species in England requires further observation; my specimens of *D. oculatus* are all from Mr. Wollaston, who found them in Lincolnshire, while my *D. plumbeus* are from the neighbourhood of London. It seems very probable that more species of the genus *Dasytes* will occur in England; *D. obscurus*, *Gyll.*, can hardly be wanting, and the true *D. subæneus* may be confidently expected, and may at once be known by its tarsi, which exceed the tibiæ in length."

May 2, 1870. —A. R. WALLACE, Esq., President, in the chair.

Additions to the Library.

The following donations were announced, and thanks voted to the donors:— ‘Proceedings of the Royal Society,’ No. 118; presented by the Society. ‘Journal of the Quekett Microscopical Club,’ No. 10; by the Club. ‘Bullettino della Società Entomologica Italiana,’ 1870, part 1; by the Society. ‘The Canadian Entomologist,’ vol. i.; by the Editor. ‘Recherches sur les Crustacés d’eau douce de Belgique,’ parts 2 and 3; and ‘Matériaux pour la Faune Belge: Crustacés Isopodes terrestres;’ by F. Plateau, the Author. ‘Notes additionnelles sur les Phryganides décrites par M. le Dr. Rambur;’ by R. M‘Lachlan, the Author. ‘Descriptions de Calosoma nouveaux des Collections de MM. de Chaudoir et Sallé;’ by M. de Chaudoir, the Author. ‘Contributions to the Theory of Natural Selection;’ by A. R. Wallace, the Author. ‘Contributions towards the Knowledge of Indian Arachnoidea;’ by Dr. Stoliczka, the Author.

The following additions by purchase were also announced:—Latreille, ‘Histoire Naturelle des Crustacés et des Insectes,’ 14 vols.; De Castelnau, ‘Notes on Australian Coleoptera.’

Exhibitions, &c.

Mr. Hewitson sent for exhibition a selection from a large number of butterflies collected in Ecuador by Mr. Manuel Villagomes. The whole collection comprised 2000 specimens in perfect preservation, and the new species are described in the paper mentioned below.

Mr. F. Smith exhibited a collection of Japanese Hymenoptera (also a few Coleoptera and Diptera) made by Mr. Geo. Lewis at Nagasaki. The Hymenoptera included a few Ichneumonidæ, but the principal part of the collection consisted of Aculeata, of which there were forty-four species, and of these about twenty appeared to be undescribed. The Apidæ consisted of one new species of Prosopis, two of Halictus, and five of Megachile (two of which have also been found in China); also one species of Lithurgus, one of Stelis, two of Cœlioxys; one undetermined species of Xylocopa, one Bombus (undetermined, but probably described), and lastly, one honey-bee, the Apis nigrocincta, also found in China, the queen of which was not distinguishable from Apis mellifica, though the workers were perfectly distinct. Of Fossorial Hymenoptera, there were a new species of Pompilus, Priocnemis dorsalis (also found in China, Java and India), a species of Agenia, an undescribed species of Ammophila, three species of Pelopæus, including P. deformis, found also in China, and P. bengalensis, a widely distributed form, found in India, China, Singapore and most of the Islands of the Eastern Archipelago; Spheg argentata, perhaps the most widely distributed species of the genus, found in India, Sumatra, Java, Borneo, Celebes, Ceram and Aru, also in North Africa and South Europe; a new species of Ampulex, Crabro vagatus, found also in China, an undetermined Larrada, and a new species of Cerceris. The Vespidæ, being insects of wide distribution,

were mostly described species, but there were one new species of *Eumenes* and three of *Odynerus*; also *Rhynchium ornatum*, found also in China; four species of *Polistes*, two apparently new, *P. hebræus*, found also in China, India, Mauritius and Palestine, and the common European *P. biglumis*, of which scores of specimens had been sent; lastly, of the genus *Vespa*, there were four species, *V. ducalis*, *V. japonica*, *V. mandarina* and *V. anchorata*. On the whole, the collection was decidedly European in appearance, and though many of the species were widely dispersed, very few of them had been previously recorded from Japan.

Mr. M'Lachlan exhibited some exotic dragon-flies; *Hypopetalia pestilens*, described in the paper mentioned below, and *Chalcopteryx rutilans*, of which genus a new species is described in the same paper.

Mr. Albert Müller exhibited the original drawings of Labram, illustrating the late Dr. Imhoff's *Insecten der Schweiz*, and other entomological works.

Mr. H. W. Bates exhibited some exotic Copridæ, described in the paper mentioned below.

Mr. G. R. Crotch sent for exhibition *Trachyphlæus laticollis* (*Schönherr*, vii. 118), a beetle new to the British list; five specimens had been captured some years ago at Weston-super-Mare. He considered the *T. anoplus* of Förster, and the *T. rectus* and *spinimanus* of Thomson, to be synonymous with *T. laticollis*, which ought to be placed with *T. alternans*, *spinimanus* and *scabriusculus*, being nearest the former by the weak armature of the tibiæ: the comparatively dense setæ separate it from *T. alternans* and also from *T. spinimanus*.

Referring to the exhibition of Bombycidæ described as *Oeona punctata*, *Lasiocampa remota* and *Lebeda hebes* (see *Proc. Ent. Soc.* 1869, p. xxii.), Mr. Dunning said that he had written to Mr. Holdsworth, calling his attention to the improbability of the same species of larva feeding both on oak and pine, and had received the following, dated Shanghai, 7th February, 1870:—

“That the specimens were *all* bred from the same larvæ is correct, and the statement that three distinct species have been made out of them has puzzled me very much. It clearly shows how careful we ought to be, when collecting in foreign climates, to pay greater care to the watching and collecting of larvæ. With regard to these Bombyces, it is my opinion that they are male and female of one and the same species. The specimens sent you show, it is true, considerable difference in colour and markings, but if you could see the large number which I have in my cabinets, with the varieties gradually merging into each other, I think you would at once proclaim them one species. Again, amongst the hundreds of larvæ which I found and bred, the only difference to be observed was in the lighter or darker shade of the ground colour, from blackish brown to velvety black; and this very trivial difference could scarcely be sufficiently important to constitute distinct species. The hill on which I found the larvæ was covered on one side with small pines, dwarf oak,

briars, azaleas and other small trees and scrub; but I found the larvæ feeding only on pine and oak, and I found also cocoons on both trees, the cocoons being also exactly the same. On my return to Shanghai I brought with me a large quantity of larvæ, some taken from pine and some from oak; but owing to my being unable to obtain the proper pine (the only food I could supply them with was dwarf oak from the Fung-wan-shan hills, thirty miles from Shanghai) all the pine-feeders died, and the oak-feeders made their cocoons. The cocoons found on the two kind of trees I kept separate, and the same great variation in colour and markings was noticed in the insects from both. Therefore I think we may safely say that *Oeona punctata*, *Lasiocampa remota* and *Lebeda hebes* are one and the same."

Mr. Holdsworth's letter also contained the following description (see Proc. Ent. Soc. 1869, p. xxi.) of the larva of *Heterusia remota*:—

"Length when full grown, one inch. Head black, comparatively small. Legs very short. Body primrose-colour, covered with tubercles and coated slightly with fine hairs; a black line down the middle of the back, a broader black line on either side for the entire length of the body, upon which are white tubercles having black centres; on each side, near the end of the black line, a vermilion spot, also one on either side of the head. The under side of the body of a dirty white colour. Feeds upon an evergreen-like stumpy bush with round glossy leaves, the blossom white with yellow centre. The larva curls a small leaf with its edges inwards, and there makes a small white paper-like cocoon, three-quarters of an inch in length. The larvæ spun up 15th—19th May, and the moths appeared 4th—5th June."

The Secretary mentioned that Mr. Holdsworth had sent over some silk-cocoons, which he had received from the interior of China, the provinces of Honan and Szechuen; the Honan cocoons were doubtless *Bombyx Pernii*; those from Szechuen belonged to an oak-feeding species, and though remarkably large and heavy were probably only a fine race of the same *B. Pernii*.

The Secretary also drew attention to a Report made by Mr. Adams, Secretary to Her Majesty's Legation in Japan, on the subject of silk-culture in that country, dated in January last. He states that the complaints of the degenerate quality of the season's silk are universal. Several silk inspectors declare that the general quality has visibly deteriorated, the hanks being unclean and very tangled; and one, who buys for a house in Lyons, says that there has been very little really first-rate silk in the market since the beginning of the season. The Japanese, incited by the high prices paid by foreigners, have looked to quantity rather than quality, believing that they can sell profitably whatever produce they bring to the Yokohama market; more women are consequently engaged at the reeling period, and not only are the new hands inexperienced, but, being for the most part paid according to the amount which they reel, they do their work in haste and carelessly. Mr. Adams recommends that modern machinery be introduced into Japan, with some European reelers to teach the

use of the machines: the silk would then be clean and uniform, and would rise in value, soon making up by its increased price for the first outlay in machinery. Some modifications in the European machines are considered necessary, and it must be borne in mind that the women are much smaller in stature than the European reelers. The shipments of silk from the 1st of July, 1869, to the end of the year were about 6,850 bales, against 12,000 in the same period in 1868, and 5,000 in 1867; but there was no dearth of silk in the market, and the crop of 1869 seemed to be as abundant as that of 1868. One cause of the deterioration of the silk is the immense export of eggs of the best quality, foreigners offering high prices for the cards. The three great steam-boat lines carried to France and Italy in 1868 2,300,000 cards, and in 1869 1,390,000 cards. The universal ravages of the maggot known as the uji have much to do with this considerable decrease. It is believed that the fly fastens upon the young silkworm, and, pricking it, deposits its egg or eggs within the skin; adipose matter is formed round the egg, and when the egg is hatched the maggot feeds upon this matter, and, increasing in size, penetrates more and more into the intestines of the silkworm. The Japanese throw away all the uji, believing them to be dying or dead; but the uji does not die, but turns into a fly: the persons employed should be enjoined to destroy every uji as soon as it emerges from the cocoon, a course which would very materially diminish the number of flies in the following spring. Also, when the silkworms are going to spin, the Japanese should separate all those cocoons which have the dark mark showing that they contain uji. These should be suffocated, thus destroying the uji; the cocoons would be reserved for reeling. The disease would thus be arrested, and, it would seem, eventually eradicated.

Papers read.

The following papers were read:—

“Descriptions of twenty-two new Species of Equatorial Lepidoptera”; by Mr. Hewitson.

“Descriptions of a new Genus and four new Species of Calopterygidæ, and of a new Genus and Species of Gomphidæ”; by Mr. M'Lachlan.

“On a new Genus and some new Species of Copridæ (Coleoptera-Lamellicornia)”; by Mr. H. W. Bates.

“Descriptions of some Genera and Species of Australian Curculionidæ”; by Mr. Pascoe.

Catalogue of British Neuroptera.

“A Catalogue of British Neuroptera,” compiled by Mr. M'Lachlan, the family Ephemeridæ by the Rev. A. E. Eaton, and published by the Society, being the first part of the proposed General Catalogue of the Insects of the British Isles, was on the table.—*J. W. D.*

A List of the Birds of Cornwall. By EDWARD HEARLE RODD, Esq.

[FROM its very commencement, Mr. Rodd has been the warm friend and consistent supporter of the 'Zoologist': neither the allurements of so-called popularity nor the blandishments of technicalities, so irresistibly attractive to younger men, have induced him to swerve one jot or tittle from the Journal that he knew was doing the work he wanted to be done: though a host of competitors, year after year, have offered him the charm of novelty, he has been faithful to his first love, and has made the 'Zoologist' the fit repository of every observation in Cornish Ornithology during more than a quarter of a century. I believe there is no similar instance to be found in the entire range of Natural-History literature. Hence the Avifauna of Cornwall has been worked out in a more thorough manner, and the record preserved in a more available form, than that of any other English county; and this is saying much, for have we not the delightful works of Stevenson, Harting, Cecil Smith and others, who have laboured more successfully to make the little world of ornithologists familiar with the birds which surround their homes; nor must I omit the names of J. H. Gurney and W. R. Fisher, whose papers on the Avifauna of Norfolk, published in the earlier volumes of the 'Zoologist,' really leave nothing to be desired.

I have often said, and in thus applauding the labours of our indefatigable workers I do not shrink from the position, that a county is no natural division of the earth's surface; and that a bird appearing within its statutory limits is a fact of small value in physical geography: such a bird is neither a native nor a denizen; indeed its passing over, or even its alighting, is a mere fortuitous circumstance, and has no more connection with the soil than the fleecy clouds which float over it on a summer's evening. Then again I regard as the *least*, not as the *most*, interesting names in a county or local list, those excessive rarities which seem, on account of the very abnormality of their occurrence, to be most highly prized. My estimation of such abnormal occurrences is in an inverse ratio to that of many a fellow-labourer in the Science. I think little of a golden eagle at Box Hill, still less of a griffon vulture in the Cove of Cork; nothing at all of a darter (*Plotus Anhinga*) at Poole; and I read with a kind of abhorrent shudder of a kiwi kiwi killed in Wales: yet these dainties have been cooked for us by competent artists, and truthful artists too; and have been dished

up to the intense satisfaction of a wonder-loving public. The Avifauna of a district should be not only rigidly restricted to birds connected with the district by habitually breeding or periodically feeding there, but should convey reliable information on that most interesting subject, the geographical distribution of animals. Mr. Rodd's communications have done this, and have supplied us with a list of the highest possible value.

Mr. Rodd has, however, made a mistake in giving his list so wide a range: as a list of the birds of Great Britain it is remarkably deficient in recent discoveries, imperfect in detail and unsatisfactory in arrangement: nevertheless the distinction between British and Cornish birds is so clearly expressed that I have found no difficulty in confining my restrictive list entirely to the latter.

The additions in parentheses () are by Mr. Rodd himself: those in editorial brackets [] are my own.—*Edward Newman.*]

THE following, although a general list of British birds, is intended to show a statistical summary of the species at present included in the Cornish Fauna. There are so many valuable works on British Ornithology, giving in detail accurate descriptions of the plumage, dimensions and habits of our British birds, and explaining their generic and specific characters, that it would be useless to repeat such descriptions, or indeed to add remarks, except where particular circumstances admit of so doing, namely, in reference to the rarity of the species, the peculiarity and locality of its capture, or the variety in form, colour and dimensions which individuals have exhibited. It may be remarked that the Land's End locality has been singularly fortunate in rendering specimens of our rarer birds, and adding to the value of the British as well as the Cornish Avifauna since attention has been given to the scientific resources of the district, and which may be in a great measure attributed to its extreme westerly position, and other influences which climate and other causes arising from its maritime and peninsular characters are calculated to aid. It must, however, be noted that rich as our Fauna has been in the occurrences of rare birds, we cannot boast of a large list either of land or water birds remaining with us as permanent residents or migrants during their seasonal visits to this county. Thus in land birds, the Land's End district is almost wholly without jays, woodpeckers and nut-hatches, which may be found in more or less numbers in other parts of England, and in the woodland parts of Cornwall, as permanent

residents. The Land's End district can boast of very few of our summer migrants as permanent summer visitors: we are without the song of the nightingale, garden fauvette, lesser whitethroat, reed wren, pied flycatcher, tree pipit, or wood wren. All these species, however, have been noted at Scilly, and some few occasionally near Penzance, but almost always during the autumnal migratorial season. One cause for their passing us by may be the absence of natural woods and arboreal cover, as some of the above are found in other parts of the county throughout the summer; but the occurrences of such rare and interesting species as the spotted eagle, redbreasted flycatcher and the lesser gray shrike are sufficient encouragements to watch the Natural History of the far west. The same remark also applies to our water birds and waders. A large number of this class have occurred in Cornwall, but generally at seasons when the migratory impulses have set them moving for their long flights, the western part of Cornwall being their final point for departure. The larger portion of the extensive family of ducks retire northward to rear their young, returning to us in the autumn, and in increased numbers when driven by severe frosts to seek their food where marshes and water are less icebound; the grebes, divers and a very large list of our sea birds doing the same, as well as the snipes, woodcocks, sandpipers, stints, godwits and other wading birds. We are visited with a large number of these birds in their southern migratorial movements in the autumn—some as a resting-place for a further flight, and others for a permanent residence during the winter months, until the spring months invite their return northward. It has been remarked that the starlings, which formerly only visited the West of England in the autumn and winter months, have gradually extended their summer residence westward of late years, so that we find, more or less, numbers annually rearing their young where hitherto they were entire strangers. The stone plover, although a summer visitor in other parts of England, and whose well-known and remarkable whistle is heard in Hampshire, Wiltshire and other southern counties, is never seen in the Lizard and Land's End districts, except in winter; and the only way to account for this deviation is to presume that a portion of the migratory party in their southern flight in the autumn hold a northern limit, just reaching the Land's End and the Lizard lands (the most southern in the British isles); the corresponding northern migration in the spring just taking the whole number above the southern latitudes of the extreme western counties. The same remark applies to one of our

interesting warblers in the black redstart, which, exceptionally to all the other Sylviadæ, appears with us in the winter and not summer. The record of every ornithological curiosity has been carefully noted and published in the monthly issue of the 'Zoologist.' The list is not complete beyond the new species referred to in the Supplement to Yarrell's 'British Birds,' and some few others, since discovered, whose claims for a place in the British Fauna are fully authenticated, *viz.* the lesser gray shrike, redbreasted flycatcher, tawny and water pipits, and some others. It will be observed that some doubt is entertained by, perhaps, the greatest ornithological authority of the day in the value of some of the species in Mr Yarrell's great work as entitled to hold a place in the British Fauna, by his not admitting them amongst his 'Birds of Great Britain.'

RAPTORES.

Spotted Eagle.—A rare European species, shot in Ireland in 1845. See Yarrell's 'Supplement to British Birds.' Examples: Youghall, Cork, 1845; Killarney, 1846. The following notice of the occurrence of this eagle in Cornwall, the first English example, is taken from the 'Zoologist,' January, 1861:—"The capture of this rare eagle took place on the 4th instant in the eastern part of Cornwall, at a large covert called Hawk's Wood, the property of Francis Rodd, Esq., of Trebartha Hall, adjoining the large moors between Hawk's Tor and Kilmar, and not very far distant from the well-known Cheese-wring. Hawk's Tor and Kilmar Tor rank amongst the highest hills in Cornwall, reaching in altitude from 1000 to 1200 feet: the characters of these hills and the moors about them in every direction are exactly similar to those on Dartmoor; in fact, the range is a continuation of the great granite tract, extending, with some few interruptions, to the Land's End. The capture of this bird deserves a notice: it was observed first in a tree, and on the approach of the shooting party, instead of soaring, the bird shuffled down the tree and scrambled under some rocks: the condition of the bird was beyond the average of birds of prey, large masses of fat encircling the gizzard, which, on dissection, was entirely empty: one of the wing-bones was broken, but whether with shot or otherwise I cannot exactly determine: the body, wings and every part of the bird exhibited the most perfect form, but probably some injury at the time prevented the bird from taking flight. Weight 4 lbs. 1 oz. Sex male.—In the first year's plumage." A second example of the spotted eagle, almost in a similar

state of plumage as the above, was killed near Carnanton, St. Columb, in the latter part of the year 1861, and is now in the Truro Museum.

Whitetailed Eagle.—Sometimes seen on the sea-coast: the last specimen, on the authority of the Rev. John Davis, of Kilkhampton, was killed at Cornekay, in the parish of Kilkhampton, on the 9th of November, 1844. Weight 10 lbs.; length 3 feet 1 inch; breadth 7 feet 6 inches. One seen a few years since at Skewjack, in the parish of Sennen, near the Land's End.

Osprey.—Several examples obtained, although at uncertain intervals: generally observed in estuaries; Gwithian, Helford, &c. One example killed at Scilly, in September, 1849. Said to breed at the Lizard; but no instance authenticated. Found occasionally in most of the English counties.

Gyr Falcon.—Very rare in the southern parts of England: one killed at the Lizard; another at Port Eliot, in St. Germans: the former was in the Museum of the late Mr. Magor, of Penventon: the latter, which appears to be the permanent variety known as the Greenland falcon, is the specimen in my cabinet of falcons. [In the 'Zoologist' for February, 1870, Mr. Rodd records the capture of a young female Iceland falcon, in the parish of St. Merryn, a few days prior to the 7th of January; but in the March number of the same Journal Mr. Rodd himself informs us, on the authority of Captain Fisher, "that there had lately been three large importations of this fine bird from Iceland for falconer's use, some of which had been trained and flown loose for months." Mr. Rodd is induced from this circumstance to relinquish all claim to this specimen as Cornish.—*Edward Newman*.]

Peregrine Falcon.—Not uncommon, and in different states of plumage: breeds annually on the Morvah cliffs; specimens obtained from thence and Trengwainton in adult and immature plumage: observed near Trewavas Cliff, in Breage. Adult specimens, of both sexes, have the back light blue: the male bird much smaller than the female. Not unfrequently observed at Scilly, where they breed.

Hobby.—Rare: summer visitor. One killed by the Trebartha keeper, on the Bodmin Moors, a few years since; another at Greston Wood, near Launceston.

Redfooted Falcon.—Rare: first record of its capture, 1830, when four were killed in Norfolk. Examples: Selby, 1844; Wembury, near Plymouth, within a few miles of Cornwall, which last is the adult specimen in my cabinet.

Merlin.—Winter visitor; not uncommon: specimens obtained from Madron and Gulval. Frequents the outskirts of moors, bordering on cultivated land. The old male with a light blue back is the “stone falcon” of Bewick. (A specimen in this beautiful state of plumage was killed in the grounds of the Hon. and Rev. Stephen Lawley, at Trevalyn, near Penzance, this week.—*February 19, 1870.*)

Kestrel.—Generally distributed, and the best known of all our smaller hawks, from its stationary and fanning action in the air.

Sparrowhawk.—Generally distributed: the female of this species is at least one-third larger than the male.

Kite.—No recent example. This species has been almost exterminated in the West of England: two examples in the Truro Museum of the Cornish Institution, labelled as Cornish. (A very fine adult specimen of the common kite was obtained from the grounds of Trebartha Hall, near Launceston, on the 1st of December, 1869. I have not heard of a specimen of this beautiful bird occurring anywhere in the West of England for the last fifty years, although I have a vague recollection of the species having—in my school-boy days, at Buckpostleigh, near Ashburton, in Devonshire—regularly bred in a large woodland, called “King’s Wood,” not far from Holne Chase, on Dartmoor. My nephew saw this bird to great advantage, soaring with his forked tail in full relief against the sky: it had been observed feeding on carrion for some days at the kennel; and previous to this my nephew observed, and reported to me, a large brown hawk which he observed on the extensive moors in the neighbourhood, and which he said appeared at a distance to be all tail: this no doubt was the kite.—*December 2, 1869.*)

Common Buzzard.—The most common of the large Raptores, and a well-known species: may be seen on most days on our high hills, especially at Zennor and Towednack, sailing at a great height, in large circles, with almost motionless wing; they exhibit an interesting and wild appearance whilst thus soaring at a great elevation. This species is remarkable for the variation in the light and dark hues of its plumage. It has been observed that an extensive and regular migration of the common buzzard takes place in the autumn, when large numbers are seen together in the moors in the eastern part of the county.

Roughlegged Buzzard.—Not observed in the western district, but once seen on Bodmin Moors: nowhere common, although one or more specimens have been obtained in nearly every county.

Honey Buzzard.—Most frequently met with in the counties on the east coast of England. The honey buzzard has lately been captured in Cornwall (see 'Zoologist' for 1855-6). Two specimens obtained from Carclew, and one from Trereife, near Penzance. This species is remarkable for having the lore covered with small feathers, which in the other Raptore is nearly bare.

Marsh Harrier.—Rare throughout the whole county: a few specimens have been procured from this neighbourhood, *viz.* the Land's End, Boswharton Moor and Lamorna; but the species appears to be more rare every year.

Hen Harrier.—Not a numerous species: a proportion of four-fifths of the examples captured have been in the "ringtail" or brown plumage. The ringtail is the female of this species, and the young males exhibit the female tints till the second or third year.

Montagu's Harrier.—Not rare: an immature female was obtained from Madron, and another from one of the western parishes: an adult male from Trelaske, in the eastern part of the county. There are four distinctions in this species from the last, *viz.* its inferiority of size; the black bars on the secondary feathers of the wing of the male; greater length of wing; and in the under parts of the adult male having longitudinal rufous streaks, whilst the immature males and females have the under parts of an uniform rufous-brown—characters not observable in the common harrier. Montagu's harrier has been captured at Scilly: the adult female in my collection was sent to me from the islands. (This harrier may be regarded as a species quite as plentiful as the common or hen harrier of late years in the Land's End district. We get them in Cornwall in all stages of plumage, more frequently in the immature than in the adult state, with the under parts having an uniform fawn-colour. An adult male and female were shot on the property of Mr. George Williams, near the Lizard, this week, and with them there was a second female, a variety, with an uniform sooty *black* plumage throughout—the second of the kind I have noticed: the tone of this colour is so intense that the bars on the tail are only just perceptible: both the females were far advanced in the development of their eggs. The adult female, as also another I had some time since from Scilly, has the breast yellowish white, with rusty red linear oblong blotches, the general colour of the upper parts wood-brown, but on the wing-coverts when closed there is a broken patch of yellowish white. The dark bird was caught in a trap, first baited with a rabbit, or something of the sort: this attracted her,

but she continued to hover about without pouncing: the keeper thought that a viper would be a more successful lure, and having killed one, placed it on the trap: the bird on seeing it immediately pounced on the reptile and was captured. I mention this to show that in the predatory habits of our Falconidæ, and what are deemed "vermin," results beneficial to man may be traced, as well as the contrary. Ought we not to pause before we try to exterminate every creature that we deem unexceptionably mischievous?—*May 4, 1870.*)

Scops Eared Owl.—Scilly Isles. The only instance of the occurrence of this small owl in Cornwall was at Scilly, in April, 1847. This species exhibits the most delicate pencillings of gray and brown in its plumage, surpassing the much admired plumage of the wryneck and nightjar in these particulars: it is the smallest species of British owl. The gray tone of plumage denotes the male bird, the rufous tone the female. [The gray figure of this owl in Gould's 'Birds of Great Britain,' was drawn from a specimen obtained at Scilly in April, 1847.]

Longeared Owl.—The occurrence of this bird in the neighbourhood of Penzance, *viz.* Trengwainton, Trevethoe, Scilly and elsewhere, is very frequent.

Shorteared Owl.—Winter visitant: appears in October and throughout the winter months very frequently: generally found in the heath covert, and furze on the sides of hills; also in turnip fields, and not unfrequently several together.

White Owl.—Rather rare in the western part of Cornwall, but more numerous in the eastern part.

Tawny Owl.—Generally distributed where any woodland districts offer shelter.

Hawk Owl.—The first recorded British example of this owl was taken on board a collier, a few miles off the coast of Cornwall, in March, 1830, in an exhausted state (See Yarrell's 'British Birds,' p. 139). A second example of this rare owl is recorded in the 'Zoologist' for February, 1850, from the pen of E. T. Higgins, who says it was shot on the 25th of August, 1847, on Blackwall hill, near the Bristol and Exeter Railway, and came under his observation on the following day.

Little Owl.—Rare: one obtained near Helston, and in the collection of the late Mr. Magor, of Redruth: two are recorded to have been taken near Plymouth. Natural habitat: Germany, Italy, Spain, Levant, &c.

INSESSORES.

Great Gray Shrike.—Rare: occasional visitant in some parts of England, and generally, though not always, in the winter. One killed at Gweek, near Helston.

Lesser Gray Shrike or Rose-breasted Shrike.—Scilly Isles. A specimen of this shrike was killed at Scilly in the month of November, 1851, and sent to me in the flesh, and is the smaller one in my cabinet of shrikes. (See Corr. and notices in 'Zoologist' for the year 1867. See also further particulars of this new British species in Gould's 'Birds of Great Britain,' Article "L. minor").

Redbacked Shrike.—Trembath, Madron; and The Minney, Penzance; nest and eggs procured from these localities: summer visitant, not numerous, and at uncertain intervals; nest large for the size of the bird, and much exposed.

Woodchat Shrike.—Very rare: an adult bird caught in a boat, near Scilly. In the autumn of 1849 several examples of the young of the year were captured on the Scilly Isles, apparently driven there by a strong east wind which intercepted their migratorial movement southwards: this may be regarded as an important fact, as offering good grounds for believing that they were bred in the British Isles,—a fact quite new to Science, the species itself being, until very recently, not included in the British Fauna.

Spotted Flycatcher.—Generally distributed in the summer months, especially in East Cornwall.

Pied Flycatcher.—Not recorded as a Cornish species till the autumn of 1849, when one was captured at Alverton, Penzance; others have since been taken at Scilly, under the same circumstances as the woodchat.

Redbreasted Flycatcher.—Carwythenack, Constantine. (See Gould's 'Birds of Europe.') Scilly Isles. A female specimen of this small flycatcher was killed at the parish of Constantine by Mr. Copeland, of Carwythenack, in January, 1863, and sent to Dr. Gray, of the British Museum, for identification. The species is a native of the eastern districts of Europe and western Asia, and this is the first instance of its occurrence in Great Britain. (See 'Zoologist,' 1863). Notice of the capture sent by E. H. R., from information in a letter from J. Gould, Esq., to him in January, 1863. The nearest approach to it in tone of colouring of our small birds is in the garden fauvette, *Curruca hortensis*; but the pure white in the upper portions of the

lateral tail-feathers of this flycatcher is a strong mark of distinction, independent of its smaller size. Another, probably the male, was seen in the same locality, and at the same time, by Mr. Copeland, but it was not secured. The male bird has very much the appearance of our common robin, the tone of red in the throat and breast (which is seasonal) being identical, but not extending so far down. A second specimen (a young male) was killed at Scilly, in October, 1863, in company with some young birds (pied flycatchers). Three were captured: one of them from its smaller size was mistaken for a chiff-chaff, but its four outer semi-white tail-feathers arrested the attention of the captors. The sides of the breast were rufous, and this extends across the breast: this denotes the young bird. (See 'Zoologist,' p. 8841). A third specimen of the *M. parva* was observed and captured at Scilly on the 5th of November, 1865, by the Rev. John Jenkinson, who observed it in a tree, busily engaged in capturing flies, in doing which it darted off from its branch, returning to the same place in the same way as our common spotted flycatcher. The specimen is very similar to the first Scilly bird, which is in my museum, but the margins of the secondary quills and wing-coverts are broadly edged with rufous; the note of the bird was heard by Mr. Jenkinson, and it resembled the "chat" of the stonechat, showing its approach to that genus.

Dipper.—East Cornwall: frequents rocky mountain streams: breeds on the banks of the Lynher, at North-hill. The shape and appearance of the nest is very similar to that of our common wren.

Missel Thrush.—Generally distributed.

Fieldfare.—Winter visitant: after severe frost there is always a great accession of numbers throughout this and the western counties, from their retreating as far southward and westward as possible for a less rigorous climate; a short duration of severe frost appears to prostrate the powers of this and the following species. Universally distributed.

Redwing.—Winter visitant. (See previous remarks on the fieldfare). Universally distributed.

Song Thrush.—Generally distributed.

Blackbird.—Generally distributed.

Ring Ouzel.—Summer visitant; rare, but sometimes seen on the wild open country about Zennor, Towednack, &c. Carn Galva, in Morvah, on our north coast, where it has been seen, is a locality exactly congenial to the habits of this bird. More common on the eastern moors, where they breed. The young, scarcely fledged, have

been observed and taken on the moors and tors near North-hill, *viz.* Hawk's Tor, Kilmar, &c.

Golden Oriole.—Sennen. A specimen now in my museum, in brilliant adult plumage, was captured in the spring of 1859, in the parish of St. Buryan, the particulars of which are recorded in the 'Zoologist' for 1859. Two other adult male specimens have been obtained, and a female taken in a boat, by a fisherman, near the Land's End: Mr. Symons, of Mayon House, possesses one, and the late Mr. Magor, of Redruth, had another, and also a female. A male and female were observed and afterwards shot in Trescoe Abbey gardens, Scilly, May 6th, 1865, and a pair or two are observed nearly every spring.

(Three orioles, one of them in very bright plumage, have appeared together in the island of Trescoe, in the plantation of Mr. Smith, the lord proprietor, during the last few days. Mr. Smith informs me that all the specimens that have been seen from time to time in Scilly have occurred in Trescoe, and one reason may be that in that island alone are there localities adapted by the plantations, evergreens and flowering exotic shrubs on Mr. Smith's grounds for the bird nesting and rearing its young.—*May 14, 1867.*)

(To all appearance a pair of the golden oriole have adopted the gardens at Trescoe as their summer nesting-place and nursery: they appear generally together, and up to last week were to be seen daily as far as I can learn with the usual indication of nesting.—*June 20, 1867.*)

(The golden oriole has again appeared at Scilly this season; one is in beautiful plumage, as bright as a marigold, the other, probably the female, in duller plumage. This species appears now to be a regular spring visitor to the Scilly Islands in larger or smaller numbers; but hitherto they have disappeared when the season for breeding advances, although to all appearance the birds have paired, and have been seen to frequent close plantations, as though preparing for nesting.—*May 3, 1869.*)

(I have to communicate to you the appearance of the golden oriole in large numbers at Trevehoe, about seven miles from Penzance, towards the north coast. Mr. H. Manners, jun., was good enough to bring for my inspection this morning two adult specimens, a male and female, in the finest possible plumage. He shot them out of a flock of eight last evening (April 21, 1870), and many others, at least fifty, were distributed over a plantation where a considerable quantity of high gorse prevails. I received by the Scilly packet to-day

(April 22, 1870) information of the appearance of golden orioles on the Scilly Islands: one was picked up dead and four others seen in bright plumage in Trescoe Island, and another, apparently a female, in Sampson. I observe that the female is rather larger than the male.—*April 22, 1870.*) [The immigration of these beautiful birds in April of this year has excited much interest: from Cornwall they seem to have spread in all directions over the South of England and Ireland.—*E. Newman.*]

Hedge Accentor.—Generally distributed: song continued throughout the winter in mild open weather.

Redbreast.—Generally distributed.

Redstart.—Very rare westward of Exeter. First discovered in Cornwall in Trebartha woods, in the parish of North-hill; nest and eggs also found and secured, and specimens of the bird. Seen during the autumnal migration at Scilly.

Black Redstart.—Not uncommon in the winter months in immature plumage; frequents stone hedges, stone walls by the side of roads, and appears to prefer open ground to bushes and trees. Observed at the migratorial season at Scilly.

Stonechat.—Generally distributed.

Whinchat.—Rare and local; eastern moors; occasionally in the neighbourhood of Penzance,—on the open downs near Castle-an-Dinas.

Wheatear.—Summer visitant, and generally distributed over the less cultivated parts of the country, on stone hedges, &c.

Grasshopper Warbler.—Summer visitant; rare: occasionally heard in Alverton fields, Madron bottom, and a few other localities: song resembling the notes of a cricket, but uttered with rapidity and continuously, apparently with one breath, and with a trilling expression. The habits of this species are retired and obscure, and from its constantly frequenting the most dense part of brambly hedge-rows, it is seldom seen. Sings throughout the night, and in still summer nights may be heard at a considerable distance, although the note is in itself weak.

EDWARD HEARLE RODD.

(To be continued.)

Extracts from a Memoir intituled 'A Monograph of the Alcidæ.'

By ELLIOTT COUES, A.M., M.D.

(Continued from Zool. S. S. 2163).

Simorhynchus camtschaticus (Lepech.), Schl. — Habitat: North Pacific Coasts. Unalashka (Pallas). Kamtschatka (Mus. Bost. Nat. Hist. Soc.) North-west coast of America (Mus. Smiths. Inst.)

Bill much smaller, simpler and differently shaped from that of *S. cristatellus*, though not distantly resembling the juvenile undeveloped condition of the latter. Width at nostril very slightly less than depth at same point, about two-thirds of the length of culmen; bill regularly >-shaped in lateral outline; culmen very convex, regularly arched from base to tip; gonys nearly straight, rapidly ascending; commissure slightly sinuate, a little curved upward at tip; apices of both mandibles acute, fairly meeting each other on the level of the commissure; tomia of upper mandible slightly nicked near the tip of the bill. Wings and tail of usual shape for this genus; the length of the latter contained about three and a half times in the length of the former from the carpal angle to end of first primary. Tarsus much shorter than middle toe and claw; middle toe a little shorter than outer toe; middle toe and claw just as long as outer toe and claw; inner toe and claw a little shorter than middle toe without its claw.

The form of the bill alone is characteristic; the other details of structure are shared by the rest of the *Simorhynchi*.

A very long recurved crest of exceedingly slender, delicate, filoplumaceous feathers, six (to ten?) in number, springing from the anterior part of the forehead, about opposite the anterior edge of the orbits, brownish black; a single series of slender filamentous feathers from each side of the base of the culmen, and thence to the superior border of the orbit; a second similar but shorter series from the edge of the commissure, and thence along the lower part of the side of the jaw; a third similar series from the posterior canthus of the eye, and thence adown the side of the neck; yellowish white. Body colours almost uniform; brownish black, sometimes with more of a grayish, sometimes with more of a fuliginous hue; the wings and tail most intense in colour, frequently nearly black; the under parts, particularly the belly, lighter and more grayish brown, inclining to mouse-colour. Bill orange-red, its apex salmon-colour, or more decidedly yellowish. Legs (in the

dried specimen) posteriorly dark brown, anteriorly lighter, more reddish brown; feet dull brown; claws reddish brown.

Length of body (approximately) 8·00 inches; wing 5·60; tail 1·60; bill—chord of culmen ·45; depth at base ·28, width at base nearly the same; length of rictus ·95; tarsus 1·00; middle toe 1·25, its claw ·35; outer toe 1·30, its claw ·30; inner toe and claw 1·10; length of outstretched crest 1·40; length of longest whitish feathers over eye 1·00.

Os hyoides examined: The apophyses are slender cylindrical bones ·6 long, slightly knobbed at the end, debaricating at an angle of about 40°. The ceratohyals are absent in the specimen. The urohyal is a delicate style for ·10 of an inch, then suddenly expands into a broad, flat, very thin spatulous lamina, subrectangular in shape, or rather cordate, transversely concavo-convex. This lamina is as long as the rest of the urohyal, and its breadth is rather greater than the length of the stylous portion. The basi-hyal is ·15 of an inch long, slender and cylindrical, bearing upon its apex an exceedingly thin, expanded, somewhat cochleariform glosso-hyal. No opportunity has presented itself of examining the tongue-bones of other species of the family.

The present is a long and well-known species. First made known, at the beginning of the present century, by Lepechin, it was re-described as *Uria mystacea*, in the *Zoographia Rosso-Asiatica*, by Dr. Pallas, whose expression “* * pennulis setaceis albis elongatis superciliaribus *mystaceisque*,” leaves no room for doubt as to the species he had in view. It was re-described in 1823 by Prof. Lichtenstein, under the name of *Mormon superciliosum*. Unfortunately, it furnished the subject of *Planche Coloriée*, No. 200, at the hands of M. Temminck, under the palpable pseudonym of *Phaleris cristatella*, which event might have been the occasion of confusion and uncertainty were the bird a less strongly characterized species. As it is, there is no difficulty in detecting and correcting M. Temminck's error. *S. camtschatica* is so very distinct from *cristatella*, that no special comparisons of the two are required. It is only necessary to point to the configuration of the bill, and the presence of superciliary and maxillary filoplumes, for their ready discrimination. For the rest, the present is a much smaller species than *cristatellus*, and the plume is perhaps longer, certainly less recurved, usually composed of fewer feathers, which are rather more filamentous. The setaceous feathers are essentially arranged, as may be seen above, in three distinct sets or bundles; one from the side of the bill along the commissure and lower part of the cheeks; one from the culmen over

the eye, and a third from the posterior canthus of the eye backwards over the auricular region and side of the neck; though the first and last sets may appear more or less directly continuous with each other. It is possible that the plumage described above may not be the most perfect one, still the perfect development of the crest and other ornaments warrants the belief that the bird from which it was taken is an adult. Authors speak of the under parts, particularly the abdomen, as being frequently nearly white, which may be the coloration of those parts in very mature or very old birds.

At present writing only one perfect specimen of this species is known to exist in any American Museum. The Boston Natural History Society possess this one; No. 9209 of the Museum Register, No. 8135 of the Fresnaye collection, now owned by the Society. The Smithsonian Institution has a mutilated specimen (a head only), from the north-west coast of America, presented by Mr. John Gould: as far as can be judged, it belongs to a bird rather more perfectly plumaged than the Boston Society's specimen.

Simorhynchus tetraculus (Pall.), Coues.—Habitat: Asiatic (and American?) coasts of the North Pacific. "In mari orientali, præsertim Unalashka" (Pallas). Kamtschatka (Mus. Acad., Philada., and Mus. Smiths. Inst.) Bay of Yedo, Japan (Mus. Smiths. Inst.)

Bill small, short, much compressed, regularly conical from a lateral view, simple, being without decided sulci, ridges, caruncles or other irregularities of surface of any sort; culmen narrow, regularly moderately convex from base to tip; commissure and gonys perfectly straight in their whole length; the tip of the bill turned neither up nor down, but the points of both mandibles almost meeting on the level of the commissure. Nasal fossæ scarcely discernible as such, the upper border of the small, basal, linear nostrils being flush with the rest of the bill. Frontal feathers extend forward with an obtusely rounded outline on the culmen, then rapidly recede backwards as they pass downward in a straight line just past the posterior end of the nostrils to the commissural edge of the upper mandible; those on the side of the lower mandible extending not quite so far, but the interramal space fully feathered. Wings rather longer than usual in this group; legs, feet and tail as in other species of the genus, the legs perhaps a little longer, comparatively, than in other species. A crest of ten or more slender elongated feathers with loosened fibrillæ springs from the middle of the forehead, just before the eyes, and curves forward in the greater part of a circle to near the tip of the bill.

A very few filamentous feathers on the sides of the head, the slender series beginning at the posterior canthus, and thence extending downwards and backwards. A small white spot just below the eye. Everywhere dull blackish or dusky, deepest on the back, becoming more of a smoky or brownish gray on the under parts; under wing-coverts like the rest of the under parts; crest coloured like the back. Bill an undefinable dusky* in the dried specimen; legs and feet livid gray (probably greenish or bluish in life); membranes black; claws black.

Dimensions.—(Spec. in Mus. Acad., Philada.): Length about 8·50; wing 5·50; tail 1·60; chord of culmen ·35; gape ·60; gonys ·25; greatest height of bill ·33, greatest width ·25; tarsus 1·00; middle toe and claw 1·50, outer 1·40, inner 1·25. Another specimen (No. 22,258, Mus. Smiths. Inst.): Wing 5·60; tail 1·75; chord of culmen ·40; gape ·80; gonys ·40; height at base of bill ·40; width at same point ·30; legs and toes as in the preceding specimen.

Three specimens of this species examined: one in the Philadelphia Academy from Kamtschatka, which served as the subject of Mr. Cassin's description in the 'Birds of North America;' another in the Smithsonian Institution (No. 22,258), received from the Bremen Museum, labelled "Phaleris cristatella (Pall.); Winterkleid; Kamtschatka;" another also in the Smithsonian (No. 15,805), labelled "Phaleris cristatella; Bay of Yedo, Japan; Apr. 1854; eye gray; iris black; Rodgers' North Pacific Exploring Expedition." The last-mentioned specimen is in a very poor state of preservation, and is a young bird, as evidenced by the short straight crest, directed backwards; though the bill is nearly perfect in size and shape, and the general aspect of the bird is precisely that of the adult. The other two specimens are in fine condition, and represent the perfectly mature state. These three include all that are known to exist in any American Museum. It is not a common bird in collections, and is frequently mistaken for the young cristatellus, to which species, however, it bears only a distant and superficial resemblance.

The bird here described is indubitably the "dusky auk" of Pennant, a species more perfectly and satisfactorily described and figured by Dr. Pallas as *Alca tetracula*. It is a strongly marked species, not distantly allied to and somewhat resembling cristatellus in everything

* Pallas gives its colour as "fusco-rubrum;" Gmelin as "ex fusco-lutescens;" Latham as "luteo-fuscum."

but the bill, which is of a radically different formation, as will be impressed upon the mind by a perusal and comparison of the descriptions given under head of these species. *Tetraculus* requires no special comparison with *crstatellus* or with *camtschaticus* for the substantiation of its distinctness. *S. Cassini* of this paper is the most closely allied species, and might just possibly be confounded by a careless or ignorant observer. The differences will be found under head of the latter.

The diagnostic points of this species lie chiefly in the small size and peculiar shape of the bill, the length of the wings (proportionally greater than in any other species of the genus), and the greater length of the feet and toes. The wings, tail, feet and toes are about of the same absolute dimensions as those of *crstatellus*, although *tetraculus* is rather a smaller bird. The various shades of the dark colour of the plumage are produced by admixture of black, brown and gray: there is no pure cinereous or plumbeous on any part of the plumage.

This is a species which entered at a very early day into ornithological literature, notwithstanding which it has not a single accredited synonym. Its claims to recognition as a valid species, distinct from *crstatellus*, have not been impugned, except by the learned Director of the Museum of the Pays-Bas. It has been the occasion of no confusion or conflict of opinion among writers, except in those few instances in which it has been erroneously supposed to have furnished the subject of Audubon's plate of *crstatellus*. The most cursory examination of the plate will convince the mind upon this point. Mr. Pennant, in virtue of his "dusky auk," which is this species, would have been entitled to the proprietorship of the bird, had he given it a binomial name; but as it is, Dr. Pallas stands as its lawful sponsor, having christened it *Alca tetracula* in 1769.

Simorhynchus Cassini, Coues, n. sp.—Typical and unique specimen, No. 46,564 of the Smithsonian Museum; a male (adult?) collected August 3, 1866, at Oonimak Pass, Russian America, by W. H. Dall.

Bill very small and short, only half as long as the tarsus; extremely compressed, being hardly more than half as wide as high at the base; its height at base three-fourths the length of culmen; lateral aspect of the bill nearly triangular; culmen regularly lightly convex in outline; rictus perfectly straight; gonyes almost straight, ascending; tip of bill rather obtuse; no tubercles, sinuosities or other irregularities of surface or of contour. Nasal fossæ well marked, oval in outline, reaching the culmen at its base, separated by a ridge from the commissural edge of

the upper mandible; nostrils low down in the fossa, small, short, narrowly linear. Frontal feathers laid straight across the base of culmen, descending nearly perpendicularly along the posterior edge of the nasal fossæ, just attaining the posterior end of the nostrils, then retreating obliquely backwards and downwards. Feathers on side of lower mandible extending to a point opposite those on culmen; somewhat further into the interramal space, which is densely feathered. Wings and tail of usual size and shape. Feet small, tarsi moderately compressed, much shorter than the middle toe and without its claw; only two-thirds the middle toe and claw; outer toe as long as, or slightly longer than, the middle, its claw much smaller than that of the middle; tip of inner claw just reaching base of middle claw.

Entire upper parts blackish cinereous, or very dark lead-colour, deepest and very black on the crown, wings and tail. Entire upper parts much lighter and more grayish plumbeous, insensibly blending with the colour of the upper parts on the sides of the head, neck and body, fading very gradually into whitish on the abdomen and under tail-coverts. Inner webs of primaries, secondaries and tail-feathers dusky gray; the outer glossy black; under surface of wings dusky gray, nearly black along the edge. Bill dusky, tinged with red; tarsi behind and toes below black; rest of feet an undefinable colour in the dried state, perhaps reddish in life. "Eyes white and black" (collector's label).

This is a very strongly-marked species, differing to a remarkable degree from any other of the family. The chief peculiarity of form lies in the bill; so small, simple, extremely compressed, destitute of appendages, and otherwise unique, as will be seen by the description. As regards colour, the tinge of clear plumbeous which pervades the uniform dark colour is very characteristic. There is no trace of a crest, nor of elongated filiform feathers about the head: their absence, however, is not to be regarded as a specific character, since it cannot be positively affirmed that the specimen is fully adult.

The affinities of the species are clearly with *S. tetraculus*, which it resembles in the small simple compressed bill. But it is unnecessary to compare the two and point out the differences. A glance at the dimensions will alone suffice to show specific distinction. There is no other bird in the family that *S. Cassini* in the least resembles.

Simorhynchus microceros (Brandt), Coues.—Habitat: Asiatic and American coasts of North Pacific; Kamtschatka; Kurile Islands; Plover Bay; Sitka; Japan. Numerous specimens in the Mus. Acad.,

Philadelphia, and Mus. Smiths. Inst., from various localities. Not known to occur as far south as Washington Territory, U.S., though found in the Japan Sea.

Smallest of the auks, with the exception of *S. pusillus*. Bill very short, not half as long as the head, stout, deep, wide, little compressed, obtuse at the tip; its width at base nearly equalling its height at the same point, and but little less than the length of culmen. A small but conspicuous globular tubercle arising from base of culmen, beyond which the culmen is strongly arched, very regularly convex, rapidly descending, its tip not very acute, obsolete notched on the tomlia, very slightly overhanging the tip of under mandible. Commissure almost straight its whole length, the extremity very slightly ascending. Gonys short, rapidly ascending, very slightly convex. Nostrils in a short but wide and deep fossa, placed rather higher up above the commissure than in some species, narrowly linear, not reached by the frontal feathers. Frontal feathers extending to the node on the culmen, then retreating obliquely backwards as they descend along the sides of the upper mandible; feathers on side of lower mandible extending farther than on upper mandible. Proportions of wings, tail, legs and feet as in other species of the genus.

Adult.—Forehead and lores conspicuously marked with delicate hair lines of white, produced by numerous short, stiff, but very slender white setaceous feathers scattered thickly thereover; a few of which filaments, more elongated and thread-like than the frontal ones, stretch adown the sides of the head to below the level of the jaw; and a few more excessively delicate ones reach from the posterior canthus of the eye some distance along the sides of the occiput and nape. Entire upper parts, including the forehead, vertex, occiput and sides of head (with the exception of the white feathers just described), sides of neck, and wings and tail, glossy black. Inner webs of the primaries dusky gray. Under wing-coverts (except the smallest row just along the antibrachium and metacarpus) white. Region about base of under mandible blackish plumbeous, and a few feathers along the sides under the wings and on the flanks blackish; all other under parts white, mottled, especially on the breast and sides, with black, the throat alone remaining immaculate. Bill red, tubercle and base of upper mandible dark bluish. Legs and feet an undefinable dusky in the dried state; the anterior border of the tarsus and superior aspect of the toes dull greenish.

Length about 6.50; wing from carpus 3.75; tail 1.25; tarsus

·70; middle toe and claw 1·00; outer do. the same; inner do. ·85; bill—chord of culmen (including width of knob) ·40; along rictus ·60; gonys ·25; height at base ·30; width at base slightly less.

The preceding is a description of the perfect plumage of this species, which is of comparatively infrequent occurrence. The usual state of plumage of the bird as met with in collections is much as follows:—Bill as described above; filamentous feathers much as above described, but rather shorter and more sparse, and scarcely appearing behind the eye and along edge of side of lower jaw. Upper parts plumbeous-black, sometimes slightly interrupted in its continuity by a few whitish feathers about the scapulars; the primaries grayish black, paler on their inner webs; secondaries grayish white at their tips. Under parts white, as before, but very sparsely marbled or waved with dusky; least so on the abdomen, most so on the sides and breast, where the blackish so increases in amount as to appear more or less continuous with that of the upper parts. Chin and sides of jaw as above described, but throat white, immaculate. The dusky mottling varies greatly in amount and in intensity with different specimens. Sometimes it is reduced to a few isolated touches here and there, and again it is found to give the prevailing colour to the under parts. That specimens in this mottled condition are not immature, is proven by the fact that the bill is fully grown and provided with a well-developed tubercle, and that the forehead is thickly covered with white setaceous feathers. The mottling, however, is confined to the tips of the individual feathers, whose bases are pure white; and is thus *apparently* of a temporary and transient character, like that so frequently met with in young or winter specimens of gulls and petrels. It may be a seasonal feature, or one only found in birds of a certain age; and yet numerous facts tend to indicate it as a character of perfectly mature birds. Were one to examine a specimen with the usual moderate amount of mottling on the under parts, and notice the fact that the blackish occupies only the tips of the feathers, he could not fail to be impressed with the analogy just now hinted at, and to conclude that with advancing age the mottling would grow less and less, and finally disappear, leaving the under parts pure white, as in *pusillus*. Such, however, appears not to be the case. Specimens whose age is attested by a fully developed bill and well formed tubercle, are those most mottled below with blackish. And yet, no specimens have been found with the breast or any other part of the under parts uninterruptedly black,

trenchantly divided from white areas. The peculiar kind of mottling exhibited by this species is so unusual as a condition of perfect maturity, that the suspicion arises that the very highest state of plumage is not yet known.

Young.—Entirely similar in plumage to the bird as just described; but the under parts white, scarcely relieved by mottling; and the white extending far around on the sides of the neck, leaving only a narrow median dorsal line black; the bill smaller than that of the adult, and the tubercle wholly wanting, or very imperfectly developed; its place on the culmen being occupied by a soft skinny covering like that on the nasal fossæ.

Specimens frequently occur in this condition. An understanding of its precise import is somewhat complicated by the fact that, although the tubercle is entirely wanting, and the bill otherwise obviously undeveloped, the head is well provided with the whitish setaceous feathers. Birds in such condition might be confounded, on casual inspection, with *S. pusillus*. But more careful examination will result in the observation that the bill is far too large, *thick* and heavy to be that of *pusillus*; that there is no conspicuous white patch on the scapulars; that the size of the whole bird exceeds that of *pusillus*: which points, in connection with some others which might be enumerated, will serve to distinguish the two species. Their relationships are dwelt upon more at length in the succeeding article.

When old birds of this species are moulting, in the fall, the glossy black of the fresh feathers on the back is interrupted with dull grayish black patches, formed by the old feathers which have not yet been renewed; and the old worn primaries and secondaries are dull grayish, fading almost into grayish white at their tips and along their edges. A specimen in such a condition (No. 46,563, Smiths. Mus.), though palpably an old bird, has no trace of a caruncle on the bill.

It may not, perhaps, be exceeding due bounds to hint at the possibility that the nodule on the bill may be temporary in character, assumed after a certain age, at a certain season, and then lost, wholly or in part, by absorption, to be again resumed at the same period of the following year, probably during the season of reproduction. This suggestion presents itself to the observer without straining on his part, and, in fact, is rather forced upon his attention, after examination of specimens, apparently adult, in which no trace of the tubercle is to be found. The tubercle is in essential characteristics an extrinsic formation upon the bill, differing radically in its structure from the rest of

the organ. No good reason appears to forbid the supposition that its growth and subsequent re-absorption, may be periodical. Arguments for such a belief might readily be adduced in the periodical hypertrophy and atrophy of the combs, wattles, caruncles, and the various other fleshy or cutaneous or semi-corneous growths about the head and bill of very many birds, which enlarge during the breeding season, and afterwards diminish or entirely disappear. It is also within the limits of possibility that caruncles of this species is a sexual characteristic. The specimen above mentioned (No. 46,563) is marked female. However close to, or remote from, the truth either or both of the foregoing suggestions may be, it is certain that observed facts relating to the rostral knob of this bird are at variance with generally received doctrines about it, and are explicable by the application of one or the other of the preceding hypotheses. At present we are very much in the dark in the matter.

Various ages, conditions of plumage and bill of this species are well represented by the numerous specimens in the Museum of the Philadelphia Academy and of the Smithsonian Institution, from various localities along the coasts and among the islands of the North Pacific. No specimens are contained in any other American collection.

(To be continued.)

Extracts (Ornithological) from the Log of the "Coralie," R.Y.Y.C.
By JOHN CORDEAUX, Esq.

FROM THE HUMBER TO THE TWEED.

CONTRARY winds and unsettled weather having delayed our departure from the Humber for ten days, we finally embarked, on the morning of the 5th of May, for a fortnight's cruise to the North.

12.15 P. M. Got under way, and by 2 P. M. had rounded the Spurn, well pleased to be again afloat on the wild North Sea. There were numerous gulls near the mouth of the river, principally herring and the common species, some brownheads (by far the commonest of our Humber gulls, but now, with the exception of a few old birds, away at their breeding-places), some lesser blackbacks and one pair of mature great blackbacks. No other birds seen, excepting a black-throated diver, who took no notice of the cutter till we were almost upon him, when diving under a big wave he was seen no more.

Beating to windward during the afternoon, with a strong north wind, heavy sea and flood-tide against us. We had hoped to reach Bridlington Bay by midnight, but, the wind and sea increasing, put about and ran for the Humber. 5.30 P.M. Anchored in Sunk Roads.

May 6. 6.30 A.M. Morning cold and cloudy, a clear white horizon to the north, with ragged, torn and leaden-tinted vapour drifting slowly across it: wind N.W. 8.30 A.M. Under way. 9.30. Spurn high light bearing S.E. three miles: two swallows seen.

1.25 P.M. Withernsea Church, bearing W. by N. seven miles. A curlew crossed our bows, flying two feet above water, and going directly out to sea. Many razorbills and guillemots off Hornsea and in Bridlington Bay, but no divers seen. Several porpoises, usually in pairs, and swimming very high in the water. 11.30 P.M. Passed the Head.

May 7. 7 A.M. Flamborough Head, bearing S.W. $\frac{1}{2}$ W. 7 miles. Little wind, but heavy roll from the north: a few razorbills and guillemots flying towards headland. 10.30 A.M. Off Robin Hood's Bay, north of Scarborough: wind entirely gone; little lady having her own way, swinging her heavy boom and (that dreariest of all nautical sounds) thrashing the reef-knieeles against the sail. 8 P.M. Flocks of guillemots, &c., flying northward along the coast: a few kittiwakes seen. Rolling heavily all night, and drifting slowly with the flood towards Scarborough. Burnt many "flare-ups" (tow dipped in turpentine and placed at the end of an iron rod): this precaution is necessary to show our position to any of those terrors of the North Sea, the steam colliers, which may be coming up astern.

May 8. 8 A.M., wind S., slight breeze. Gradually drawing ahead again. 10.30, breeze freshening. Set square-headed topsail. Made a splendid run up the coast, averaging seven knots per hour. Birds scarce: a few kittiwakes, guillemots and two redthroated divers seen, principally off mouths of Tees and Tyne. I have often been pleased to see the interest shown by our fishermen and coasting sailors in the various birds frequenting these seas. In summer weather, or in those long dreary calms when time hangs heavy, every object seen acquires special interest, and none more so than the various forms and flight of birds; each has its own appropriate name, often in allusion to some peculiarity in flight or note. I am sure if the good men who have worked so hard and zealously to procure the Sea-bird Preservation Bill could see, as I have done, the seaman's face brighten, and listen to his quaint remarks as he watches some passing flock of sea-fowl,

they would feel themselves amply repaid for all their exertions. If the Bill never serves any other object than to preserve to our seafaring population an almost constant fund of amusement and variety, it has well done its work. Barren indeed would the ocean fields appear without their winged wanderers.

8.30 P. M. Sighted the outer Farne light, on the Longstone, the scene of Grace Darling's devoted heroism.

May 9. 5.30 A. M. Off the coast of Berwickshire, St. Abb's Head bearing N. $\frac{1}{2}$ W. four miles: becalmed. Many gannets seen, flying in pairs about two feet above the water, and all heading for the Bass Rock; only noticed a single immature bird. The flight of the gannet is peculiar; half a dozen slow beats of his great black-tipped wings, and then a sail or glide; then a repetition of the beats, and so on. Guillemots and razorbills numerous: a single pair of black guillemots seen, in transition plumage, flying towards the mouth of the Firth.

11.30 A. M. Towed into Berwick Harbour. Gannets flying out to sea, others wheeling and hovering overhead like terns, but in no instance did I observe any of the numerous birds now in sight strike at a fish. At the mouth of the Tweed, terns were fishing; the first we had seen. This afternoon noticed the first pair of swifts; they were hawking round the keep of the romantic old border fortress of Norham. The Museum at Berwick contains a small collection illustrative of local Zoology: birds from the coast of Berwickshire and Northumberland; also a case or two of eggs, principally collected from the Farne Islands,—amongst these those of the roseate tern, also fieldfare's eggs ticketed "Berwickshire": the fish include specimens of the garfish, bonito and Norway haddock (*Scorpena norvegica*): the gem, however, of the collection is a magnificent and very perfect skull of the auroch (*Bos primigenius*) from Caithness.

May 11. Walked from Burnmouth along the Berwickshire coast towards St. Abb's Head: the scenery magnificently wild and grand; cliffs rising perpendicularly from the sea to the height, in some places, of five hundred feet, their base inconceivably broken and dislocated: masses, in bulk like cathedral towers, standing isolated from the parent cliff, surrounded by lesser rocks and heaps of boulders, small only in comparison, hurled and piled together in the wildest confusion—long knife-like ridges of contorted silurian rock running out from the coast, their edges jagged and splintered like gigantic saws, around which the restless sea, even in the calmest weather, is ever churning itself into acres of snowy foam. Beyond these dark skerries, some just awash,

marked alone by the boiling and seething of the troubled waters, others again partially immersed at intervals, as each succeeding roller marching in swells up along their black slippery flanks in one unbroken sheet of pale emerald, threatening to bury them altogether, to rush back again broken and disrupted from the splintered crag in cataracts and streams of molten silver. At the mouth of the deep and narrow valleys and indentations intersecting this coast line, are clusters and rows of fishermen's cottages—the wonder is that they are not washed away in some stormy winter's night: within a small L-shaped pier, constructed of immense stones, are moored the luggers, remarkable for their immense beam and great hoist: they are excellent weather boats, keeping the sea often in heavy gales: how they succeed in running into the harbours, almost enclosed, as they are, by these black hungry-looking reefs, is marvellous. The sea on this coast in winter was described as awfully sublime, and judging from the pools of salt water far up the rocks, and the worn and polished appearance of the cliffs themselves two hundred feet above high water mark, together with the position of many water-worn boulders, fully confirmed all we were told. I picked up two specimens of the ugly lump-fish (*Cyclopterus lumpus*) and a dead gannet, and observed many rock pipits and wheatears, and a redshank. Leaving the shore near Burnmouth we had a steep pull to reach the summit. Between this and Eyemouth were hundreds of herring gulls, some scores of these marine vultures sailing beneath us along the face of the precipices: to gaze down on these really noble birds, poised or floating on motionless wing across some deep twilight chasm, they look the very emblem of peace and rest: hundreds of feet below we catch glimpses of those awful skerries and black crags, and the wild restless sea, the thunder of whose waves at this height has a strange subdued and muffled sound, like the booming of cathedral bells heard afar. The herring gull is here as common as the lesser blackbacked on the Northumberland coast; we saw very few of the latter, but of the first both mature and immature birds were everywhere plentiful, both along the coast as well as inland. Although many were sitting together on ledges of the precipices, I was unable to determine whether or not they have any breeding-station here.

May 13. Pulled up the Tweed for some miles to see the salmon fisheries. In consequence of the extreme drought and lowness of the water but few fish had been taken: we saw many hauls at the various river-side stations, the only result of which, excepting a few large

trout, was a single salmon. Two sandpipers, gray wagtails, and a few lesser blackbacked gulls were seen, besides many sand martins, settlements of which occur in the high banks of the bends of the stream. The sand martins have also utilized the crannies in the old walls of the fortifications at Berwick for breeding purposes.

May 13. By rail to Belper Station, thence on foot to Bamborough with the intention of crossing over to the Farne Islands: from one cause or other, however, we were prevented, greatly to my regret, from visiting, either on this day or on our return south, these nurseries of sea-fowl. Inspected the grand old castle; the rock covered with branches of *Silene maritima* and *Armeria maritima*, now in full bloom; the white and red flowers, contrasting with the dark basaltic rock, had a most beautiful and garden-like effect. On the coast between Bamborough and the little fishing village of North Sunderland were many mature and immature lesser blackbacked gulls: they are most unquestionably the common species along the Northumberland seaboard. Two or three cormorants were fishing near the shore, and some large terns (probably the Sandwich) hunting along the coast; too far out, however, for us to be quite certain of the species. I was glad to see, at Sunderland as well as Bamborough, hand-bills warning all persons of the provisions of the Bird Preservation Act.

May 14. Towed out of Berwick soon after midnight; wind S.W. and strong. Intended having a look at the Farne Islands; unfortunately for our purpose the breeze increased to a gale from the W.S.W., and close-reefed we ran miles to windward of the Longstone, now almost hidden by the heavy surf. The lesser blackbacked gulls and Sandwich tern were numerous, wheeling and dashing over the crests of the big waves, or skimming buoyantly along the trough of the sea, eagerly scanning the surface for every fragment of floating matter washed up. Sometimes from the drift of rain and spray a kittiwake would come up, following in our wake for long distances, often hovering within a few feet of the tafferel,—a creature so beautiful, unsuspecting and tame,—so like, in its spotless and unsullied loveliness, some wandering spirit of the deep, watching, guardian-like, over our course,—that we marvelled the man should be found so hardened in heart, so dead to Nature's fairest works, as, for mere pleasure or gain, to slaughter creatures so beautiful and fair.

We had a rapid but stormy passage up the coast, the wind increasing in force as the day advanced, almost constantly deluged in spray, but shipping no green seas. 2:30 P. M. Off South Sunderland.

3 P. M. Towed into the north dock: some terns, guillemots and razorbills off entrance to the harbour, and a single redthroated diver.

May 18, 7 A. M. Left Sunderland for the south. Wind S.W., strong, squally. Very few birds seen, excepting kittiwake gulls, Opposite Staiths passed two heavy-looking ducks flying north, apparently eiders. 4.30 P. M. Off Speeton cliffs, Flamborough Head. Immense quantities of sea-fowl seen. During the next hour flocks of birds, principally guillemots and razorbills, were constantly passing, all going in the direction of the Speeton rocks: in no case were the birds flying seaward. The guillemots were decidedly in the majority; after these the razorbills, and lastly the puffins; the latter we had not before observed since leaving home: several passed the yacht, flying in pairs, and others were swimming around. These Flamborough birds are now certainly much tamer than formerly, when daily persecuted by boat-loads of excursionists: now they hardly swerve to miss the yacht, flock after flock passing us within a few yards; last year, at this season, they rarely flew within gunshot. It is pleasant to see their old confidence in man returning—to know that they are now for a time safe, and no longer ruthlessly slaughtered for mere wanton pleasure. These poor birds have long been hardly and cruelly dealt with, and now we are making tardy recompense for long years of heartless and desolating persecutions. Many of the razorbills had small white-looking fish grasped between their powerful mandibles. The guillemots seemed partial to little eels, for many I noticed had these fish dangling from their bills: these eels must be taken by the guillemot from the sea bottom. Most of the freshly-killed birds of this species, killed on this coast, which I have at various times examined, have always had, more or less, a quantity of fine white sand mixed up with the down at the base of the feathers of the under parts, which I can only account for by their mode of taking their food from the sandy bottom of these seas. Between the Head and Spurn we passed numerous parties of birds, principally razorbills. The Flamborough birds go, daily, long distances to and from their feeding-grounds, ranging further south, however, than northward: their northern limit appears to be the Durham coast half-way between the Tees and Tyne; birds north of this, as a rule, flying towards the Farne Islands.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,
June 18, 1870.

Wolves in France.—It is now nearly two centuries since wolves were exterminated in Great Britain,—the last was killed in Scotland by Sir Evan Cameron in 1680,—and it seems curious to an English reader to find a French country gentleman at an agricultural meeting taking the trouble to discuss the best means of getting rid of a beast of prey which in these islands is as little likely to trouble our farmers as the Mastodon or the Megalosaurus. At the Congrès Lainier, at Dijon, however, a week or two ago, the Comte d'Esterno called the attention of the meeting to the depredations of wolves in Burgundy, and urged his hearers not only to wage a war of extermination against the wolves themselves, but to do all in their power to get rid of the louvetiers—*i. e.* the officers who are supposed to organize wolf-hunts, &c., and who are named by the Government in all departments where wolves abound. These gentlemen the Comte d'Esterno accused of being no more real enemies of the wolves or anxious for their extermination than are masters of hounds for the total destruction of foxes in England. Not only do they take good care—in order to ensure a run and to avoid all danger of “chopping” the wolves in their lairs—to sound the horn (and a sportsman's horn is something like a horn in France!) when approaching a wolf-covert, but they even offer a reward for litters of young wolves and turn them down in the woods—just like young cubs. At present a reward of 15f. is given to whoever destroys a she-wolf, 12f. for a wolf, and 6f. for a wolf-cub. M. d'Esterno considers that these prices are not high enough, and proposes a reward of 200f. (£8) for whoever shall kill a full-grown wolf. We do not know what influence the lieutenants de louveterie, or, as they are called, louvetiers (M. Paul de Cassagnac styles himself a “louveter de l'Empire”) enjoy in the provinces, and how they will receive Comte d'Esterno's proposition to do away with the animal that shows sport to them and their packs, but we should like to see the man who would be bold enough to set a reward of £8 on foxes' heads in Leicestershire.—*Pall Mall Gazette*, June 1, 1870.

Note on Migration at Carshalton.—April 6th, whitethroat first seen; 8th, redstart; 10th, swallows; 17th, grasshopper warbler and nightingale first heard; 18th, house martin and cuckoo; 23rd, sedge warblers; May 9th, swift; 16th, sand martin; 23rd, spotted flycatcher. This year will be remembered by ornithologists for the great scarcity of the Hirundine family, especially the almost total absence of the sand martin. I have only seen four or five of these birds this season. The house martin is in the ratio of two to five compared with last year. The number of swallows are decidedly below the average; while, on the other hand, swifts appear to be quite as abundant as usual. The Italians believe that the scarcity of swallows is a very bad omen, proclaiming the advent of some severe epidemic: they state that in seasons of cholera epidemics, swallows have been always seen in fewer numbers than usual. Whether the statement that the scarcity of these birds on the advent of epidemics is to be regarded as merely a popular fiction, and a coincidence due to accidental causes, or whether there may not be the same well-defined law regulating the movements of the Hirundinæ in such cases, is a subject well worth the consideration and study of the ornithologist.—*A. H. Smeë*; June 1, 1870.

Notes on Migratory Birds.—March 27th, wheatear seen. April 14th, saw yellow wagtail and sand martins, the latter passing northward in a small flock; 15th, saw willow wren; 16th, heard tree pipit; 18th, heard chiffchaff; 21st, heard whitethroat;

22nd, cuckoo heard; 24th, whinchat seen; 26th, saw swallow; 30th, heard lesser whitethroat and sedge warbler. May 2nd, heard fieldfares (I perceive in the number of the 'Zoologist' for June, that fieldfares were seen near Oxford up to the 6th of May); 15th, corn crake heard, and flycatcher seen (corn crakes are not numerous); 16th, heard garden warbler; 20th, heard wood warbler; 22nd, saw a small flock of gray-backed crows in Stapleton Park, four miles east of Pontefract. Redstart not seen. Swift not seen. Common martin not seen till about the 20th of May. A pair of swallows that nest in a shed here annually did not appear till the 29th of May. The house martin is again very thinly distributed in this neighbourhood.—*George Roberts; Lofthouse, near Wakefield, June 5, 1870.*

On the Southern Range of the European Merlin.—The European merlin visits Egypt in winter, but I know of no authentic instance of its occurrence further south, and venture to doubt the accuracy of the southern range attributed to this species in the 'Zoologist' (S. S. 2177).—*J. H. Gurney; Marldon, Totnes, June 1, 1870.*

Goshawk in Norfolk.—A fine immature male specimen of the goshawk was shot on the 27th of December, 1869, at Beeston Regis, and sent me for preservation. This is the second instance of the occurrence of the goshawk in Norfolk in December, the first, an immature bird, having been killed, near Yarmouth, on the 3rd of that month. The first-named example weighed two pounds and a quarter in full, and the principal measurements were—total length, beak to tail inclusive, 23 inches; tip to tip of fully extended wings 43 inches, and of the wing from carpal joint $12\frac{5}{8}$ inches. Eyes of a lemon-yellow colour; cere greenish yellow; legs and toes the same. The bird was in good condition and very fat.—*T. E. Gunn; 5, Upper St. Giles, Norwich.*

Supposed Occurrence of the American Mottled Owl in Kent.—With reference to Captain Hadfield's remarks on the above occurrence, in the 'Zoologist' (S. S. 2181), it should be recollected that many specimens of Scops asio are very rufous. This stage of plumage is thus described by Baird, Cassin and Laurence, in their work on the 'Birds of North America' (Philadelphia, 1860), p. 52:—"Younger.—Entire upper parts pale brownish red, with longitudinal lines of brownish black, especially on the head and scapulars; face, throat, under wing-coverts and tarsi reddish white; quills reddish brown; tail rufous, with bands of brown, darker on the inner webs." The same authors add, "This bird pairs and rears young while in the red plumage, and it is not unusual to find a mottled male and red female associated, or the reverse."—*J. H. Gurney; May 31, 1870.*

Late Stay of the Fieldfares.—In my note in last month's 'Zoologist' (S. S. 2181), in the sentence, "I had constantly watched a flock of about twenty for some years," for years read weeks.—*Edward Sweetapple.*

Golden Oriole in Norfolk.—A fine female golden oriole was shot on the 16th of May, at Stalham, and was forwarded to me for preservation. This is the second specimen I have had the opportunity of examining in the flesh: the former one, also a female, was shot in the adjoining county of Suffolk (see Zool. S. S. 308). This specimen weighed nearly two ounces and a quarter, and measured in total length $10\frac{1}{4}$ inches; extent of wings $18\frac{1}{2}$ inches; wing from carpal joint 6 inches; bill $1\frac{1}{8}$ inch. Bill of a reddish brown; eyes dark red; legs and toes slate-colour. Some of the eggs in ovary were as large as rape-seed. The stomach was filled with the remains of three or four species of Coleoptera.—*T. E. Gunn; June 18, 1870.*

Golden Orioles in County Cork.—One of these birds was shot at Castle Martyn on the 21st of April, and one on the 23rd at Friendly Cove, "Carrigbue" (Yellow Rock), Bantry, County Cork. I have just received the female oriole shot by Mr. Philip French, of Westwood Roscarberry, County Cork, at Mr. M. H. Morris's, of Friendly Cove. Mr. Morris and Mr. French saw five more while standing at their hall door, on the wing, and marked them in a grove of fir trees; but so wary were they, that neither of those gentlemen (who are first-rate shots) could get a chance at them. It is a pity to shoot them down. They are very beautifully plumaged birds—in fact, the brightest and most attractive birds in Britain or Ireland—and they are also splendid songsters.—*W. A. Hackett; Cork.—From the 'Field.'*

Orioles in Great Britain.—Since the publication of the last 'Zoologist' several reliable records have reached me of additional occurrences of this rare bird, inducing me to believe it would in very few years remain to breed here should the gun tax become law. My neighbour Mr. Ashmead has received for preservation one killed at Red Hill on the 22nd of April: Mr. Gordon, of Dover, has received one killed on the 29th of the same month: Mr. Quatremain, of Stratford-on-Avon, received one killed on the 29th; it was feeding on last year's ivy-berries: Mr. Conway Preston records that a specimen was seen by himself in North Wales on the 21st.—*Edward Newman.*

Black Redstart in Norfolk.—I had brought me, on the 25th of April, a nice male specimen of the black redstart: it had unfortunately been dead nearly a month, and was therefore in a bad state for preservation. I heard of it at the time of its capture, but could get no information of its possessor, who it appears laid it aside and forgot it. I had the greatest difficulty in skinning it, but succeeded at last, and have mounted it in a presentable form. It was shot at Hoveton, and is the fourth instance of the occurrence of this species in Norfolk: the other three were females. The stomach of this specimen was filled with minute beetles. From its dried state of course I could not take any proper dimensions.—*T. E. Gunn.*

Grayheaded Wagtails near Clevedon.—On the 28th and 30th of May last I shot a pair of grayheaded wagtails near Clevedon, in a meadow close to the Bristol Channel. They were associating with yellow wagtails, several of which birds I observed in the same and an adjoining field, and from which they were at once distinguishable, even at a distance, by their smaller size and more slender make, and also by the lighter hue of the under parts.—*Marcus S. C. Rickards; 2, Seymour Place, Clifton, June 6, 1870.*

Vinous-breasted Pipit on the Banks of Severn.—On the 10th of last March I shot a specimen of the vinous-breasted pipit on some marshy ground on the banks of the River Severn between New Passage and Avonmouth. It was a female and in full plumage, and when shot was in company with a specimen of its congener, the rock pipit. Upon a comparison of the two birds (which were both of the same sex) the dissimilarity in plumage and measurements was apparent, and seemed to me clearly to indicate a difference in species. On the 23rd of the same month I shot another specimen near the same place, but as to the identity of which Mr. Gould (to whom I showed the skins of both birds) expressed some doubt. This specimen (also a female) appeared scarcely to have completed its moult and to be in a transition state of plumage. There is the usual bluish tinge on the upper parts, but the throat and breast are spotted unusually thickly and distinctly mixed with a few blotches of a reddish brown or tawny colour. The measurements, however, nearly correspond with those of the other specimen.—*Id.*

On the Northern Range of the Lesser Redpoll.—In the last number of the 'Zoologist' (S. S. 2178) the Editor writes, "The lesser redpoll is found everywhere from the North Cape to the extreme south of Sicily." I venture to enquire on what evidence this statement rests, for it seems probable to me that it may have originated in the confounding of the mealy with the lesser redpoll. The former is the only species of redpoll I have ever observed in any part of either Norway or Sweden, and is without any doubt the true *Fringilla linaria* of Linnæus. The northern range of the latter, to which (I believe) the name *Fringilla rufescens*, *Vieillot*, properly belongs, I have not been able to trace with certainty. I think I remember having been told that it appears in summer in Scania, the most southern province of Sweden, but I can find no confirmation of the story in the writings of any Scandinavian naturalist to which I have access. However, if the lesser redpoll crosses the Baltic at all it certainly does not penetrate far into Sweden, and between Scania and the most southern Swedish breeding limits of the mealy redpoll, placed by Herr Wallengren (*Naumannia*, 1854, p. 241) between lat. 63° and 64° N.,* there intervenes a broad belt wherein, so far as my information (obtained by personal observation and the consultation of a great many Swedish authorities) goes, no redpoll at all occurs except as a winter migrant; and the one which does so occur is (I need hardly say) the northern and larger species. Should this information be erroneous I should be glad if any one would correct it, for the geographical range of British birds, always a subject of much interest to me, will more than ever occupy my attention for some months to come.—*Alfred Newton; Magdalene College, Cambridge, June 3, 1870.*

St. Helena Finch at Blackheath.—I had brought me this week a fine male specimen of *Fringilla butyracea* or St. Helena finch. The bird is in perfect plumage, and shows no marks of having been caged. It was caught by a bird-catcher in his net near this neighbourhood. This is the second I have had caught in this neighbourhood: the first was taken eight years ago in Greenwich Marshes. I come to the conclusion that they have escaped after being brought over.—*W. Price; Blackheath.—From the 'Field.'*

Nesting of the Chaffinch.—I have known but of four nests of this bird this year, and only one pair of the four reared young. One nest, which was built in an apple tree, was blown down, or otherwise unaccountably destroyed: no one had access to it; it contained eggs. Another contained five eggs, but only two hatched. The female of another nest died while in the act of laying the second egg. I have frequently found finished nests, either wholly destroyed or with the lining pulled out. Other completed nests I have often found deserted. What bird or other animal could interfere with the lining? I shot the male of the nest first mentioned, but I noticed next day that the female had got another mate. I fancy there is something anomalous about the pairing and breeding of the chaffinch. Perhaps Linnæus observed some peculiarity beyond the separation of the sexes in winter, which

* In Norway it breeds on the uplands further to the southward, lat. 58° N. or thereabouts (*Wallengren, op. cit.* 1855, p. 136). In Scania alone of all Norway and Sweden was formerly found the red hare of Europe (*Lepus europæus*, Pall.; *L. timidus*, auctt.—*nec* Linn.); further north the blue or white hare (*L. timidus*, Linn.; *L. alpinus*, auctt.) only occurs.

suggested the scientific specific name. The other nest was a most elaborate piece of workmanship, being decorated all over the outside with bits of rotten wood: it was also very large. I took it as a curiosity, but had much trouble to dislodge it from a fork in a young beech, so firmly were the wool, moss and fibrous roots matted, and woven round the slender branches on which it rested.—*George Roberts.*

Green Woodpecker in the Isle of Wight.—A bird of this species was observed last October in an old apple tree not far from the village of Gadshill. My informant saw it alight, and having watched it was enabled to describe it to me.—*Henry Hadfield.*

Nest of a Nuthatch.—When I lived at Catton, in Norfolk, I was in the habit of placing covered boxes in the trees, which, being securely fixed, afforded convenient nesting places for tits and some other birds. My successor, Mr. S. G. Buxton, has continued this practice, and has sent me the following account, which, with his permission, I forward for insertion in the 'Zoologist':—"A nuthatch's nest was built in one of the boxes this year. I am sorry to say they deserted after laying three eggs. It was most amusing to see them building, as they were always hanging by their feet to the top of the box, with their heads inside, working at the clay, which filled about the first three inches of the box. Though the weather was very dry at the time, they always kept it moist while they were working. Having finished the clay they began splitting off very thin bits of bark from an old larch, with which they filled the rest of the box to the depth of about three inches. The eggs were laid without any nest beyond the bark, and the nuthatch seemed to cover them up with loose bark. The birds were very tame while building, and did not seem to mind our sitting close by and watching them, but I am afraid they were disturbed whilst I was away for a day or two. I had a redstart's, great tit's, nuthatch's and robin's nest in four consecutive boxes on the trees."—*J. H. Gurney; June 6, 1870.*

Roller near Lewes.—A fine male specimen of the roller (*Coracias garrula*) was killed at Isfield, near Lewes, on the 12th of June, and purchased by Mr. R. R. M'Queen, of Chailey, for half-a-crown, and very kindly presented by him to me. The plumage of the bird is most beautiful, and the condition perfect. On dissection the only thing found in its stomach was a small cockchafer. It is now in the hands of Swaysland, of Brighton, for preservation.—*T. J. Monk; Mountfield House, Lewes, June 20, 1870.*

Quail's Eggs near Lewes.—On the 14th of June Mr. J. Saxby, of Northease, near Lewes, sent me seven quail's eggs, which had been mown out that day in a field of sainfoin, at the above place. They proved a very handsome set: five of the eggs are strongly marked with streaks of a rich grouse-colour; the remaining two are much lighter and spotted.—*Id.*

Little Bittern at the Land's End.—An adult female of this species was procured at Skewjack, adjoining the Land's End, a few days since. It is in high condition, and will be an interesting feature in the Penzance Museum, along with an adult male procured in the neighbourhood a year or two since.—*Edward Hearle Rodd; Penzance, May 30, 1870.*

Little Bittern in Ireland.—When out walking on the banks of the river Slaney, about fourteen miles from the sea, in the county of Wexford, Ireland, on April 26th, I shot a most beautiful specimen of the little bittern (*Ardea minuta*), male, adult plumage. It rose slowly, and as if fatigued, from the centre of a small drain, which was completely covered up by reeds and long grass. Its flight resembled that of the

common heron. It is now being stuffed by Mr. Glennon, of Dublin, who says that he found a quantity of minnows in its stomach. I am very anxious to know more of this little stranger, and of its habits, as I have never seen one before in this country.—*James Talbot Power.*—From the 'Field' of May 14.

Wood Sandpiper and other Birds in Norfolk.—On the 7th of May I received a nice female of the wood sandpiper from Yarmouth: this is the first specimen I have had the pleasure of examining in the flesh. A female (not recorded) was shot on Breydon, in June, 1869, and also recently came into my possession. The first-named was very fat, and weighed nearly three ounces: the stomach was filled with the remains of minute Coleoptera and other insects. I have also received from various localities three specimens of the black tern and five garganey teal, four of the latter males.—*T. E. Gunn.*

Egyptian Goose in Leicestershire.—A very fine specimen of the Egyptian goose, measuring two feet six inches, and weighing five pounds and three-quarters, was shot by Capt. Palmer, on his ornamental waters at Withcote Hall, on Wednesday, the 20th of April. This is probably the first that has been shot in Leicestershire. It has been entrusted to me for preservation, and may be seen by anyone.—*T. H. Potter; Billesdon.*—From the 'Field' of May 14, 1870.

Shoveller in Dublin Bay.—Large flights of shovellers appear to have visited Britain and Ireland during the past winter. I shot three males off this coast, two splendid full-plumaged birds, the third a young bird assuming the distinctive male dress: also a female came into my possession, but too long dead except for the table. This is one of the best ducks, if we except the pochard, for culinary purposes. It was formerly not uncommon on our eastern shores, particularly at Wexford, but is now looked on as a great rarity.—*H. Blake-Knox; May, 1870.*

Sclavonian Grebes in Norfolk.—In March I received two beautiful specimens of the Sclavonian grebe, male and female, the first on the 12th and the second on the 24th: their stomachs were filled with the remains of aquatic insects and a mass of their own feathers. I received a third specimen (also a male) this day from Hoveton.—*T. E. Gunn; April 28, 1870.*

Black Bream and Wrinkled Swimming Crab near Penzance.—On the 24th of May I took a black bream, a small specimen about $7\frac{1}{2}$ inches long over all. It is worth noting on account of its small size. The last time I saw so small a specimen was on the 26th of May, 1859; that one was 7 inches long over all. Both specimens were taken in rocky ground within half a mile of the shore. I have since taken alive a specimen of the wrinkled swimming crab (*P. corrugatus*), male.—*Thomas Cornish; Penzance, May 30, 1870.*

Habits of the Sucking Fish.—I am able to send you an observation on the habits of the sucking fish, or common remora, which is, I believe, new. Its habit of attaching itself to sharks and other large fish and to vessels is well known, but I do not find that it has yet been observed that in doing this it is somewhat of a parasite and injures the portion of the skin exposed to the action of its powerful sucker. Captain Legg, of the schooner "Mary James" of this port, recently sent me two specimens of the sucking fish, with this note, which I give in his own words (the italics being mine):—"Whilst outward bound between Cadiz and River Plate, and

about 4° S. and 30° 30' W. with fine weather, a shark was seen, and having enticed him with a bait, we took him, finding many small fish on him, which he shook off when landed on deck, *and seeing that where each fish had been there remained a hole like a shot-hole*, and being studded over with them, and what with the peculiar look of the small ones, induced me to preserve two as specimens." — *Thomas Cornish; June 24, 1870.*

Pongos.—The province of Mayamba is so overgrown with wood that you can travel thirty days in the shade. The woods, Andrew tells us, are so infested with baboons, monkeys, apes and parrots, that it is dangerous to venture among them. Of these the pongo is more dangerous than the engeco. The pongo is in all his proportions like a man, except the legs (which have no calves), but is of a gigantic size. When it walks on the ground it is upright. It sleeps in trees, and makes a covering over its head to shelter it from the rain. One sees that in the main he corresponds with M. du Chaillu, though it is very likely he never saw a gorilla. I think, on the whole, that M. du Chaillu scarcely is fair to him, when he says that his accounts of the gorilla are mere traveller's tales. Andrew Battel,* as a common sailor naturally would, confused the habits of the gorilla with those of the nsbiego mbouvè (pongo and engeco, as he calls them), making the former the builder of the shelter-shed in the trees, instead of the latter, though I doubt if he confuses either with the chimpanzee. He also says that they walk upright, and that they go in bodies (which are very harmless errors, for they attacked M. du Chaillu on foot), and that they beat away the elephants. With the exception of these errors, Andrew's account of the gorillas agrees exactly with M. du Chaillu's: as, for instance, "The young pongo hang upon their mother's belly, with their arms clasped around them." This and other circumstances about them, though written two centuries before he was born, confirm his statements in the most remarkable manner, and should, we think, have met with a little more acknowledgment.—*From 'Tales of Old Travel,' by Henry Kingsley (p. 74).*

Proceedings of the Entomological Society.

June 6, 1870.—F. P. PASCOE, Esq., Vice-President, in the chair.

Additions to the Library.

The following donations were announced, and thanks voted to the donors:—
 'Proceedings of the Royal Society,' No. 119; presented by the Society.
 'Proceedings of the Zoological Society,' 1869, parts 2 and 3; by the Society.
 'Journal of the Linnean Society,' Zoology, No. 48; by the Society.
 'Berliner Entomologische Zeitschrift,' 1870, parts 1 and 2; by the Entom. Soc. of Berlin.
 'Stettiner Entomologische Zeitung,' 1870, Nos. 7—9; by the Entom. Soc. of Stettin.
 'Coleopterologische Hefte,' part 6; by the Editor.

* Andrew Battel was an English sailor, captured by the Portuguese in Equatorial Africa, where he lived for eighteen years: he was captured about the year 1590.

'The Canadian Entomologist,' vol. ii. No. 6; by the Editor. 'Catalogus Hemipterorum Italiæ indigenarum'; by the Author, Dr. Garbiglietti. 'Note sur le Byrsax (Bolitophagus) gibbifer'; by the Author, M. A. Preudhomme de Borre. 'Mémoire sur les Thyréoptérides et les Coptodérides'; by the Author, Baron de Chaudoir.

By purchase:—'On European Spiders,' by Dr. T. Thorell. 'Ichneumonidum Britannicorum Catalogus,' by the Rev. T. A. Marshall.

Election of Member.

F. V. Jacques, Esq., of Greenbank Road, Redland, Bristol, was elected a Member.

Exhibitions, &c.

Mr. M'Lachlan exhibited a partially gynandromorphous specimen of *Brachycentrus subnubilus*, captured at Cheshunt by Mr. Boyd: the maxillary palpi and the left fore wing were of the female form, whilst all the rest of the insect was of the male form. (See Ent. Mo. Mag. vii. 19). This was only the second instance of gynandromorphism in the Trichoptera which had come to Mr. M'Lachlan's knowledge.

Mr. S. Stevens exhibited living specimens of *Ateuchus semipunctatus* from Venice, one of them having been incarcerated for three weeks in a bottle with bruised laurel-leaves, without any apparent ill effect.

Mr. Albert Müller, after referring to the breeding by Herr Hartmann of various Lepidoptera from gall-like swellings on the twigs of juniper (see Proc. Ent. Soc. 1868, p. xv.), exhibited some stems of juniper from Godalming which bore swellings, some of very large size, which were supposed to be caused by insects.

Mr. W. Warwick King (who was present as a Visitor) exhibited a miscellaneous collection of insects from Tugela, near the Drakenborg Mountains, Natal.

The Secretary exhibited a collection of insects sent to the Society by Mr. Henry Ansell, from Kinsembo, S. W. Coast of Africa. In the letter which accompanied them, dated "Kinsembo, 23 Febry., 1870," the writer described the insects as "captured in this locality: the Coleoptera of this coast are certainly wanting, as I have on several occasions visited the most likely localities and found next to nothing. I hope, however, within a few months to visit Cabenda, where I believe I shall have better success."

Mr. Butler mentioned that whilst looking through the volumes of Freyer's *Beiträge* he had stumbled upon three plates illustrating the metamorphoses of *Argynnis Niobe* and *Adippe*, and upon referring to the text he found some interesting remarks on the possible identity of the two forms. He then read a translation of a passage (*Neuere Beiträge*, vol. iii. p. 11), from which it appeared that, though at one time firm in the belief that the two were distinct species, Freyer's confidence in the correctness of that view was very much

shaken when he succeeded in rearing both from the caterpillar. In vol. iv., however, Freyer added that his later investigations left him still in doubt, though he adduced additional evidence in favour of their identity. The distinctions which he relied on in the perfect insects did not hold good in examples in Mr. Butler's collection; the figures of the larvæ show a very close resemblance, the differences being less conspicuous than from Freyer's description would be expected, and even those differences, according to Freyer, are not constant. Mr. Butler concluded as follows:—"If then the larvæ and the imagines vary *inter se*, and the pupæ are alike, why are we to consider the two species distinct? Is it because there is something about the two insects that at once tells us which form we have before us, even though we cannot describe it? I do not admit that this is always the case, but if it were, it is no more than one sees in acknowledged varieties of *Vanessa C-album* and fifty other species."

Major Munn (who was present as a Visitor) exhibited a number of anatomical drawings of the honey-bee and its larva, and numerous pieces of comb in illustration of the views expressed by him as to the reproduction of the bee. Criticizing and dissenting from the theory of Dzierzon and Von Siebold, the speaker stated his belief that there was perceptible difference between the male eggs and female eggs; that the natural duration of life of the queen bee was two years, in the first of which she laid the contents of the first ovary, and in the second year of the second ovary; that all the eggs first laid were females, and the last laid were males; and that it was only occasionally, and by the prevention of laying, that the life of the queen could be prolonged for four years, as had been done by Mr. Desbrough. Major Munn then proceeded to question the commonly received opinion as to the mode in which the queen bee is reared, and contended that the notion of the larvæ being fed on the so-called royal jelly, or in fact that any of the larvæ were *fed*, was erroneous; the larvæ, he said, have no anal opening until the last day of their larval life, and no main canal extending further than the spinnerets: the larvæ, in fact, are lubricated, not fed; they grow by absorption, and in the case of the queen the rate of absorption is quickened by a layer of honey or jelly placed behind the cell in which the larva is, forming a hot-bed in the rear of the larva and enabling it to absorb at both ends or on all sides at once: with a view to the formation of this hot-bed, queen-eggs were invariably laid in unfinished cells. The worker or drone larvæ were not subject to this forcing process; and whenever a queen was raised from worker brood, without the aid of the hot-bed, a dwarf queen was the invariable result.

Paper read.

The following paper was read:—"The Genera of Coleoptera studied chronologically" (Part 2, from 1802 to 1821); by Mr. G. R. Crotch.—*J. W. D.*

A List of the Birds of Cornwall. By EDWARD HEARLE RODD, Esq.

(Continued from S. S. 2204).

Sedge Warbler.—Summer visitant; generally distributed; frequents wet ditches, willow plots, &c., and sings both in the day and night: when concealed in cover it is stationary, but when in open hedges continually moving about.

Reed Warbler.—Several captured at Scilly, with other summer migrants, in the autumn of 1849 (see woodchat shrike); not known as Cornish until then. Very rare in the western counties, and altogether as a British bird much more rare and local than the sedge warbler: distinguished from the sedge warbler by the absence of a line over the eye, and by the uniform brown colour of its back, without dark spots. Its song has a higher but rather weaker pitch than the sedge warbler. It has also a much greater variety, is more warbling, and more original with less imitative qualities than the sedge warbler, which latter bird seems perpetually to mock the songs of other birds in all its passages. The reed wren's song is a hurried but a decided warble, and is not unlike the low hurried warble of the whitethroat, when that bird sings without excitement, and mounting in the air. The reed wren's song, however, is chiding and grating, but in a less degree than that of the sedge warbler: the notes are not so forced or loud as in that bird, but sufficiently marked to denote its being one of the true aquatic warblers.

Blackcap Warbler.—Local; summer visitant. Occasionally observed in Gulval and Lariggan valleys, and at Trereife; in the eastern part of the county very generally distributed. Song sweet, wild, and full. As the summer advances the song is then less interrupted, louder, and far more remarkable for variety of expression; when continued thus unbroken the song is one of the most attractive of our smaller song birds. The blackcap is sometimes found in the winter months sparingly in the neighbourhood of Penzance; they have been observed in ivy against walls, the most favourable locality for insects and spiders, &c.

Garden Warbler.—Summer visitant: eastern parts of the county. One only recorded as seen about Penzance, although several specimens were obtained, along with other of our summer migrants, from Scilly, in the autumn of 1849. (See pied flycatcher, reed wren, &c.) This species breeds annually in the woods at Trebartha, in North-hill, from

whence specimens of its nest and eggs have been received. Its habits, food, song, nest and eggs, and general character, approach very near the former species:—song rather more hurried, and sometimes garrulous in expression, but the quality of voice quite equal, and the tones deeper, some of its notes resembling the blackbird's song: nest generally placed loosely in the middle of a bramble-bush, in a ditch, particularly where nettles offer concealment in the bush.

Whitethroat.—Summer visitant: commonly distributed. The inferiority of song in this species is very remarkable when its similarity and alliance to the two former are considered.

Lesser Whitethroat.—Occasionally seen in the autumn migration at Scilly, but unknown otherwise: summer visitant, common elsewhere.

Wood Warbler.—Summer visitant: very common in several localities in the eastern parts of the county; *viz.*, Trebartha woods, where it breeds annually: only once seen in the western district. This bird possesses two varieties of song, quite different from each other: the first, and the most usual, is the rapid jarring trill, from which it derives its Latin name; the second is a low whining, plaintive call, repeated two or three times, at certain intervals, resembling the words "chea, chea, chea,"

Willow Warbler.—Summer visitant: rather local, but, where found, common.

Chiffchaff.—Summer visitant: generally distributed. Some few remain throughout most winters, and have been heard chirping, in mild open weather, in December and January.

(The great migratory movement of our winter visitors seems to have taken place from Tuesday last to the end of the week, during the prevalence of the late easterly winds. Woodcocks, snipes, jack snipes, redwings, fieldfares and starlings have appeared in large numbers from the eastern part of the county to the Scilly Islands, and my nephew writes me word that on the 3rd instant he walked up in a short distance fifty snipes and thirty jack snipes at Trebartha, in the eastern part of the county, and that his keeper saw, in the morning dawn, woodcocks flying westward, which accounts for our market here being fully stocked on Thursday, and for the larder of the Governor of the Scilly Isles having yesterday morning forty-one woodcocks hanging up.—*November 5, 1864.*)

(In a paper which I communicated to you some twelve months since upon this subject, I referred to an anomaly which presented itself at

this season of the year, as to the autumnal or equatorial migration, or what perhaps will be better understood as the great movement from the north towards the south, which takes place at this season of the year, popularly exemplified by the well-known and palatable migration of woodcocks and snipes from the northern countries to Great Britain and the southern countries of Europe, and to the Mediterranean Isles and the North of Africa. In that notice I mentioned that at the Wolf Rock, about nine miles from the Land's End, in a south-westerly direction, a flight of small birds, comprising some of our delicate warblers, the common wren and several other species, came suddenly from the direction of Scilly, alighted on the rock, and, after resting, pursued their flight toward the main land. On Monday last, when the Scilly packet was on her passage from Scilly to Penzance, greenfinches, chaffinches, &c., passed the vessel, going at eight knots an hour, and appeared to be in a rapid migratory course facing a direct east wind. Amongst these, but keeping separate from the main flight, were observed some *tree sparrows*, a species of rare occurrence in Cornwall. I mention this little incident to show that we are all *at sea* ourselves about the true migratorial law. We should easily comprehend the anomaly if the birds of passage in their southerly course were suddenly opposed by a strong southerly gale, but nothing of the sort was the case: the wind had been for days favourable for a southern movement, and at the time mentioned the birds were flying *against* a strong east breeze.—*November 10, 1865.*)

Dartford Warbler.—Killiow, Truro; rare. No very satisfactory record exists of the capture of this small warbler westward, although it has been seen in some furzy ground in the parish of Madron.

(This day Mr. Vingoe showed me a specimen which he had received from Killiow, the seat of the Rev. John Daubuz, who shot it near his residence.—*January 11, 1869.*)

(I have seen a specimen to-day which was obtained by Mr. Vingoe's son on Trevida Moor.—*October 30, 1869.*)

Goldencrested Regulus.—Generally distributed.

Firecrested Regulus.—Penzance, Gwennap, Truro. One caught at the Minney, Lariggan; two others found dead together in the grounds of Michael Williams, Esq., at Trevince, and others near Truro, where three specimens were obtained in 1847. This species is now very often obtained in the Land's End district, and at Scilly.

[Its occurrence in England was first noticed in 1832, since which it has occurred at Knaresborough, Rye, Lewes, &c.]

Great Tit.—Generally distributed. This bird possesses, like all the species of titmouse, great variety of notes, one of them resembling exactly the sound produced by the sharpening of a saw; it utters two or three loud chirps at the commencement of spring, like the “twink twink” of the chaffinch.

Blue Tit.—Generally distributed.

Cole Tit.—Not uncommon in woods, especially in the eastern parts of Cornwall.

Marsh Tit.—Not uncommon in large woodlands in East Cornwall; rare in the west: generally frequents low copses, alder pollards, and withy coverts, in morasses: less numerous than the last species.

Longtailed Tit.—Rather local: found in small families throughout the winter, perhaps the brood of the former year.

Bearded Tit.—Very rare: an adult male from St. Levan, the only recorded example in this district.

[This beautiful little bird is more common in our eastern than our western counties. It used to be frequently found in the Woolwich marshes, and still occurs in some abundance in Essex, Suffolk and Norfolk. Mr. Stevenson, in his ‘Birds of Norfolk,’ says, “When shooting at Surlingham in the winter months, I have more than once observed the arrival of a flock from some neighbouring broad, their presence overhead being indicated by the clear ringing sound of their silvery notes, uttered preparatory to their pitching into the nearest reed-bed, and in autumn, after roosting in small parties on the reeds, they will fly up simultaneously soon after sunrise, swarming for a while like a flock of bees; and uttering in full chorus their pretty song, disperse themselves over the reed-beds for their morning’s meal. Delicate as these little creatures appear I have found them during the sharpest frosts, when the snipe had left the half-frozen waters for upland springs and drains, still busy amongst the reed stems as lively and musical as ever. It is greatly to be regretted that the demand for specimens from their handsome plumage should lead to the wholesale slaughter of the bearded tits throughout the winter; added to which, the price of late years offered for their eggs has caused a sensible diminution in their numbers.”]

Bohemian Waxwing.—Occasional winter visitant: a flight, which spread more or less over the whole of Great Britain, took place in the winter of 1849—1850.

Pied Wagtail.—Generally distributed. In very old birds I suspect the black summer plumage is retained perennially.

Continental Pied Wagtail.—Not uncommon in the spring months; easily recognised in the summer months by its light gray back, which in the common pied species is always more or less black. Falmouth, Gulval, Marazion Green, &c.

Gray Wagtail.—Winter visitant in the south of England: generally distributed. Some few remain throughout the summer in Cornwall, and breed; throat, in summer, black.

Grayheaded Wagtail.—Rare: Marazion Green. Generally observed, on their first arrival, with the yellow wagtail.

Ray's Wagtail.—Seen for a few days on their first arrival, and again in the autumn, on their return: Marazion Green.

Tree Pipit.—Summer visitant: very common in the eastern parts of the county, in the summer months: rare in West Cornwall: one killed near Pleming, in Gulval. Generally observed in large trees, in open fields, and parks, from whence the bird mounts singing, returning generally to the same tree, or a contiguous one. Song louder and very superior in quality to that of the titlark.

Meadow Pipit.—Generally distributed over cultivated and uncultivated land.

Rock Pipit.—Generally distributed on our rocky beaches.

Tawny Pipit.—Scilly Isles: this first example of the occurrence of this pipit in Cornwall was shot by Augustus Pechell, Esq., near Old Grimsby, Isle of 'Trescoe, in Scilly, September, 1868, and the specimen is in my cabinet.

Richards' Pipit.—Rare: several examples killed in Redinnick fields, Penzance, a few years since; specimens have since been obtained from Scilly. (Length $7\frac{1}{2}$, not $6\frac{3}{4}$, inches: see Yarrell.)

Sky Lark.—Generally distributed.

Crested Lark.—The discovery of this species in this district took place at about the period of the publication of the 1st supplemental number of Yarrell's History of Birds, the bird not having been recognized as British at the time of the publication of his work. Two examples were obtained in September, 1846, from the road-side between Penzance and Marazion. Attention was drawn to the birds by the melodious character of their chirp, resembling more in character the flute-like tones of the wood lark than the buoyant song of our common sky lark. The form of the beak and the comparative shortness of the hind claw are decided characters. Another specimen was observed and subsequently secured in the latter part of October, 1860. (See 'Zoologist' of 1846 and 1850.)

Wood Lark.—Local; not common in the west; more frequent about Truro and Tregony.

Shorttoed Lark.—Very rare: a specimen shot at Scilly on September 23rd, 1854. (See 'Zoologist' for October, 1854.)

Snow Bunting.—Not uncommon in the autumnal months in the open high ground in Sancreed. Marazion and Newlyn Green; Hayle fields.

Bunting.—Generally distributed: frequents open and enclosed ground, and may be observed in nearly every hedge-row.

Blackheaded Bunting.—Not uncommon in marshes where bushes grew, but nowhere abundant; egg resembling that of the chaffinch. Marazion Marsh.

[I have observed that the female sings in confinement.—*E. N.*]

Yellowhammer.—Generally distributed in every hedge-row.

Cirl Bunting.—Not uncommon in hedges near Penzance towards Redinnick: eggs resembling those of the yellowhammer in markings, but the colour of the streaks in this species is dark brown, while in the yellowhammer it is reddish purple. The note of the cirl bunting is drawn out in a continuous sibilous strain, not unlike the wood wren when heard at a short distance. The strain never ends with the high note which characterizes that of the yellowhammer, but the strain is quicker and more tremulous.

Ortolan Bunting.—Very rare: one specimen was killed on a wall at Trescoe Abbey, Scilly, in 1851.

[I have been repeatedly offered this species by the Spitalfields bird-dealers, and have purchased one which soon became tame, and is now thriving. Concerning this bird and the green canaries often offered for sale as "serin finches," "citril finches," &c. I find it very difficult to obtain reliable information, and therefore abstain from making any observations on their native county.—*E. Newman.*]

Chaffinch.—Generally distributed: sings occasionally in open weather throughout the winter.

Mountain Finch.—Winter visitant in severe weather.

Tree Sparrow.—Very rare: one obtained near Falmouth some years since; since discovered at Penzance. Locally distributed in the midland counties.

House Sparrow.—Generally distributed.

Greenfinch.—Generally distributed.

Hawfinch.—Winter visitant: appears singly, and sometimes in

small flocks, at uncertain intervals. Lariggan, &c. One or two specimens seen in the gardens at Trescoe Abbey, Scilly.

[We must cease to regard the hawfinch as merely a winter visitant. Mr. Doubleday, in the first place, and several ornithologists subsequently, have obtained specimens at all seasons of the year, and have proved beyond all question that it breeds freely in England.—*E. N.*]

Goldfinch.—Rather locally distributed.

Siskin.—Winter visitant: rare in the county generally. Lariggan, Gulval, &c.

(Siskins appeared in considerable numbers on the 2nd of December, 1867.)

Linnet.—Universally distributed.

Lesser Redpole.—Very rare throughout the county.

Mountain Linnet.—Very rare; one specimen only recorded as captured in the Penzance district.

Bullfinch.—Locally distributed and nowhere numerous.

Crossbill.—Rare: seen at distant and uncertain intervals in small flocks. Rosemorran, Trebartha woods.

(I believe I have mentioned the general distribution of the bird in the Land's End locality, extending to the Scilly Isles. I find from correspondents that the eastern part of the county has had an immense immigration of this species, and from what I have seen and heard during the past week the numbers appear to be steadily on the increase. I have received from Scilly for some weeks several specimens, and seven or eight specimens were brought over yesterday from the Abbey gardens at Trescoe. I have received no specimen in a vermilion state of red, but in those specimens where the colour of red prevailed at all there was generally a subdued dull tile-red tone, clouded over with brown and bluish gray more or less. One of the specimens from Scilly yesterday was remarkable for its colouring; the upper tail-coverts were bright canary-yellow, and the rest of the body was intermixed with blotches of red, brown, gray and yellow. A very large proportion of the specimens which have come under my notice have been a dull brown, with an extra tone either of red, yellow or green on the upper tail-coverts.—*July 29, 1868.*)

[The migration of crossbills into Cornwall to which Mr. Rodd here alludes as having taken place in July, 1868, was noticed also by a correspondent in the 'Field' of that date. Similar and simultaneous immigrations were observed in several parts of Ireland, also in Devonshire, Somersetshire and Gloucestershire.]

[In his 'Spring and Summer in Lapland' the late Mr. Wheelwright has some such original observations on the variation in plumage to which Mr. Rodd refers, that I think no apology is required for introducing them here: the change and variation in plumage to which these birds are subject has long engaged the attention of our best ornithologists, and much may be learned from so excellent an observer as Mr. Wheelwright:—"As regards the crossbills, I can clearly prove, by specimens killed in a state of nature, that they have four distinct dresses, assumed at different ages, and these I will shortly describe. The first dress, after just leaving the nest till up to the first moult in the autumn (in September), is greenish brown, with dark longitudinal streaks down each feather; and in this first plumage there is little difference between the male and the female. In the nest plumage the beaks of the young birds are straight; but the mandibles soon begin to cross each other after leaving the nest, and in young birds of the year, killed by me in November, the beak was nearly as much crooked as in the older birds. Sometimes the point of the under mandible crosses to the right, sometimes to the left. As soon as the first autumnal moult is complete, the females are easily distinguished from the males. The young striped feathers are very apparent in both, all through the winter and following spring; but all the under parts are tinged in the young males with yellow-orange, and in the females with bright yellow. In the males the heads and rumps are orange, in the females only tinged with yellow. In not one single young male of the year which I have shot in the winter (and the birds of the year are easily distinguished at this season by the presence of the dark-striped feathers) was there the slightest indication to lead one to suppose that he would become red before the next moult. The question is, when will that moult take place? some fancy in May, some in the ensuing September. I think it very probable that a change in colour takes place in May; for it appears to me that this orange-colour gradually reddens without moulting. And so much do the shades vary that scarcely two young males are exactly alike. It is impossible to say how long this young plumage lasts, but I am inclined to think certainly until the second autumnal moult of the bird, perhaps gradually becoming redder, and probably in many birds even longer; for early in November I have killed young males of a beautiful orange-red colour, which, from their size and general appearance, and the total absence of the dark striped feathers of youth, could not have been birds of the year. These

orange birds might certainly have been bred very early in the preceding spring, but I think not, and I almost feel confident that this orange-red colour is a gradual transition to the red dress, or else that the mature male crossbill owns two dresses—*i. e.*, that some birds of the same age are orange-red, and others deep red. Of one thing, however, I am perfectly convinced, that *none* of the young males obtain the full deep red dress at the *first* autumnal moult. In the year 1863 I obtained the males breeding in the same woods in three different dresses—*first*, in the early striped dress above described (these were evidently birds of the year); *secondly*, in this orange-red dress; and *thirdly*, in the deep red dress. I am at present of opinion that this orange-red dress is a transition gradually assumed between the first autumnal dress and the deep red plumage in which we usually see the male crossbill depicted, and which I consider their standard livery, and worn by them longer than any other. I may remark, however, that in our forests we meet with far more of the deep red birds than of these orange-plumage males. Respecting the bright yellow-green dress which the old male crossbills occasionally assume (but which, although so rare that we very seldom meet with it, we must nevertheless still consider as *normal*), it is hard to say at what age it is assumed, but we may reasonably infer at a very advanced period of life *in a state of nature*; though it is said that as soon as either a male crossbill or grosbeak is confined in a cage, it changes from red to bright yellow-green at once, and this colour it wears till it dies. This may or may not be the effect of confinement, but as I have killed the old birds of both in this yellow-green plumage in a state of nature, I for one do not hesitate to pronounce it normal. This latter dress can never be confounded with the yellow-orange plumage of youth by any one who has had opportunities of comparing the two. In the summer the red dress of the male crossbill appears to become darker, and the only change that I can observe in the female is that the yellow shading on the head and rump become brighter with age, but always brightest in the breeding season.”]

[The following observations on the breeding habits of the crossbill from the same accomplished writer, will, I am sure, be considered in place here:—“I fully agree with Thompson that ‘he is inclined to consider the crossbills as a wandering tribe, having no proper home, but who pitch their tent and take up their residence at a place just so long as it suits them, without contemplating a return to any particular region.’ This is peculiarly the case in our forests: they appear to

leave us as suddenly as they come, and as soon as the breeding-season is over they leave for other districts, and we see very few, often none, in the summer. It is not every year that we have them, and it is singular that we rarely ever have both the parrot and common cross-bill breeding with us in the same year. I take it all depends upon the state of the cones on the pines and firs. When there are plenty of fir-cones in the autumn, it is pretty certain that we shall have the common crossbills breeding with us that winter, and the same with the parrot crossbills where the cones on the pines are plentiful. But this appears to happen in our forests only about every third or fourth year. One curious fact I have observed, which is this, that if we see large flocks of crossbills in our forests in the autumn (they generally appear about September or early in October) we shall have very little snow that winter. The pairing season begins about the middle of January, when both male and female have a very pretty song; that of the female, however, much the faintest. Were it not for the difference of the landscape, we might almost at this season imagine ourselves in the tropical forests of the south, when we watch a little flock of these birds feeding, flitting from cone to cone, or climbing over them with their backs downwards, like the parrots, their bright-red or orange plumage reflected in the rays of the afternoon sun (at which time they are generally busiest feeding), which even at this inclement season gilds the tops of the firs for an hour or two before sinking below the horizon. They go to nest often in the end of January, always by the middle of February. The nest of both species is placed (almost invariably) in a small pine, near to the tip, close in to the stem, never in a deep forest, but always with us on a stony rise, where the pines are small and wide apart. The parrot crossbill generally goes to nest a little later than the common one. By the middle or end of April the young birds are strong flyers, and we *never take a nest with eggs after that month*. The nest of both species is much alike (that of the parrot crossbill thickest and largest); built outwardly of dry fir-sticks, lined thickly with moss and grass. The eggs much resemble those of the green linnet, but are always larger. The egg of the parrot crossbill is often scarcely larger than that of the common bird, although usually it is thicker and has a finer and bolder character. The full number of eggs appears to be three, and it is very rarely that we find four in a nest. Some naturalists say that the crossbills breed at all seasons, from December to June, and that the winter nest is domed, with a hole in the side to go in at. All I can say is (and I have had

now some years' experience with these birds) that I consider their breeding-season as regular as that of any other bird, at the period I have before stated; and as for a domed nest, I never saw such a thing. I have often wondered why nature should have neglected this provision as regards the crossbill—for in the end of March, 1863 (in which year I took above thirty-five nests out of our woods), when the weather was very stormy and rainy, I found more than a dozen nests in which the unfledged young had perished through the inclemency of the weather.”]

Whitewinged Crossbill.—Rare: an adult bird killed at Lariggan some years since, and now in a private collection at Penzance.

Starling.—Universally distributed in the winter months, in flocks; rare in summer.

Rosecoloured Pastor.—Several examples have been obtained from the west of Cornwall, an adult bird from Scilly, and apparently a female from Gwithian, near Hayle, also from the neighbourhood of the Land's End.

Chough.—Much less common than formerly; sparingly observed in different localities on the coast; breeds annually in Zennor cliffs.

[Still common round the rock-bound coast of Pembrokeshire and Cardiganshire, where they breed.—*E. Newman*.]

Raven.—A pair may be observed in most of the ranges of our cliffs, where they principally breed.

Carrión Crow.—Generally distributed.

Hooded Crow.—Rare: occasional visitant. Formerly abundant on Marazion Green, whence it derived one of its synonyms of “Market-Jew Crow.”

Rook.—Generally distributed.

Jackdaw.—Generally distributed.

Magpie.—Generally distributed.

Jay.—Common in the woodland districts of the county, but in the neighbourhood of Penzance and westward unknown.

Green Woodpecker.—Very common in the eastern woodlands; very rare in west Cornwall, and almost unknown in the neighbourhood of Penzance. Trevayler bottom; Castle Horneck.

Great Spotted Woodpecker.—Rare: sometimes seen in the eastern woodlands: a specimen now and then obtained from Treneere lawn, and Trevayler, near Penzance.

Lesser Spotted Woodpecker.—Rare: a specimen obtained from North-hill. The note of this bird exactly resembles the roosting call of the common blackbird.

Wryneck.—Rare in all parts of the county: occasionally observed in the neighbourhood of Penzance in the autumn, near the coast, probably preparing for migration. Some specimens were obtained at Scilly, with other migratorial birds, in the autumn of 1849. See woodchat shrike, pied flycatcher, &c. Fowey, North-hill, Zennor, Scilly.

Creeper.—Commonly distributed where large trees grow. Trevetheo, Lariggan, &c.

Wren.—Generally distributed.

Hoopoe.—Examples of this bird are generally to be obtained every spring: they have been observed at Scilly every year since 1843. Ludgvan, Madron, Scilly. (No less than four of these beautiful birds were killed in the second week in April, 1869).

Nuthatch.—Very common in the eastern woodlands, becoming more rare westward, and almost unknown in the neighbourhood of Penzance: eggs exactly resembling those of the great tit.

Cuckoo.—Generally distributed in the summer months.

Yellowbilled American Cuckoo.—On the authority of the notice in Yarrell's work.

Roller.—An adult specimen seen some time since by Mr. J. N. R. Millett, of Penzance, near the Land's End; a female shot at St. Levan: is in my collection,—plumage dull: another female specimen was obtained from St. Levan in September, 1865.

Bee-eater.—The only instances of the occurrence of this bird in this county was the capture of a flock of twelve near Helston, in 1828, and which came into the possession of the late George Borlase, Esq., of that place; and, on the authority of Mr. Couch, of Polperro, four specimens were seen in the parish of Madron.

Kingfisher.—Generally observed on the sea-coast, where rivers and streams empty themselves in the sea, also in creeks and inlets: nowhere common, but generally observed, from its attractive metallic colours.

Swallow.—Summer visitant: universally distributed.

Martin.—Summer visitant: universally distributed.

Sand Martin.—Summer visitant: generally distributed in the neighbourhood and within reach of sand-banks. Lelant, Marazion, and Newlyn Greens.

Common Swift.—Locally distributed. Marazion Green.

Alpine Swift.—Very rare: one example taken near the Lizard, and afterwards preserved by Mr. Jackson, of Looe. One specimen of the

Alpine swift in adult plumage was captured in the parish of Mylor, in the summer of 1859. See 'Zoologist.' This specimen is in my cabinet.

Nightjar.—Locally distributed. Trengwainton; Sancreed.

RASORES.

Ring Dove.—Generally distributed where trees, shrubberies, and plantations exist.

Stock Dove.—Rare in the western counties: two specimens obtained from Scilly a few years since. Large flocks seen occasionally.

[More precise information is desired respecting the enormous flocks of this bird reported last year.—*E. Newman*.]

Rock Dove.—Found occasionally in the cliffs on the south coast of Cornwall, about Looe and Polperro: one killed at Carn Galva, Madron.

Turtle Dove.—Summer visitant: generally observed, in more or less numbers, in the spring months, in sheltered valleys. Fleming; Gulval; Madron; Scilly.

Black Grouse.—Very rare in Cornwall: occasionally seen in the eastern moors; one reported to have been shot at Castle-an-dinas, Gulval, some years since. Hybrids between this species and the common pheasant have been killed in the parish of North-hill.

Pallas' Sand Grouse.—The general distribution of a flight of this oriental species (which has hitherto only been noticed in the great sand deserts in western Asia, and in the eastern portions of Europe) over the whole of the British Isles, from John o'Groat's house to the Land's End and the Scilly Isles, and from Norfolk to Ireland, during the summer of 1863, entitles it to be ranked amongst the British wild birds. Some specimens showed eggs in the ovarium more or less developed, and one female in particular from the naked state of the breast and belly gave strong evidence of incubation. (See 'Zoologist' for 1863.)

Partridge.—Universally distributed.

Common Quail.—Rare: occasionally seen singly in the neighbourhood of Penzance.

Great Bustard.—One observed and afterwards captured on Goonhilly, Lizard district: this proved to be a female, and is now preserved in a private collection at Penzance. Another example of the great bustard was obtained from the immediate neighbourhood of St. Austell, near Polgooth mine, in the month of January, 1854, and

which was recorded in the Cornish papers; it was reported to be a female: the bird was preserved at Falmouth, by Mr. Chapman, and the owner, Mr. Williams, butcher, of St. Austell.

Little Bustard.—Very rare: one obtained from the neighbourhood of Trelowarren. Two specimens (females) of the little bustard were brought to Penzance and sold to the poulterers in December, 1853. The last I purchased for half-a-crown, and I was told that two or three others had been killed and one offered for sale and rejected.

(A very fine bird of this species, which from its size I should think was a male, came into the hands of Mr. Vingoe for preservation yesterday, from the Lizard. The plumage was entirely plain from the throat downwards, showing no trace of the crescentic black markings which characterize the male in summer plumage. The roseate tint which pervades the basal parts of the feathers, and the down on the back and breast next to the skin, quite equal in intensity the under plumage of the roseate tern.—*October 30, 1869.*)

WATER BIRDS.

Great Plover.—Occasionally observed in the Land's End district in the winter months, and one or more examples captured every year, although it is referred to by authors as a summer visitor elsewhere.

Golden Plover.—Generally distributed in the winter months over the open heaths and moors: large accessions after severe frost, when the fallow fields are visited by them; sometimes observed in March with the black breast and belly partially developed.

Dotterel.—Rare: open moors and sheep-walks; an inland species: one specimen killed in Sancreed.

Ringed Plover.—Generally distributed along our sea-shores, and very often associated with the dunlin: breeds early; eggs found at Scilly in April; legs and feet yellow.

Kentish Plover.—A specimen obtained from Marazion beach, the colour of the legs in this species, which is black at all ages, distinguishes it from the last-named species, as well as its smaller size.

Little Ringed Plover.—Very rare as a British bird. A young bird of the year, corresponding in every particular with the figure in Gould's 'Birds of Europe,' was shot by F. R. Rodd, Esq., near the higher pond of Tresco, Scilly, in October, 1863. See 'Zoologist' for further particulars.

Gray Plover.—Occasional winter visitant, especially after severe weather. Marazion Green. This bird has been obtained from this

neighbourhood with all the under parts entirely black, and the summer plumage completed.

Lapwing.—Locally distributed. Trevear, Sennen; Tregavara moor, Madron.

Turnstone.—Observed in the spring and autumn migrations, and at these times common on our flat beaches. Marazion sands.

Sanderling.—Not a very numerous species: specimens in winter and summer plumage frequently obtained. Hayle estuary, Marazion sands, Scilly, &c.

Oystercatcher.—Not uncommon on the western coast of Cornwall: occasionally seen on Marazion sands, Newlyn beach, and Scilly. Breeds at Scilly.

Heron.—Generally distributed in suitable localities, especially in creeks and estuaries. These is a heronry on the Lamorran river, near Truro; another near Fowey.

Purple Heron.—Two adult examples in perfect plumage obtained in the county within the last few years: *viz.*, Killiow, Kea; Trevider, St. Buryan.

Squacco Heron.—Occasional visitant: St. Hilary, St. Levan, Sennen, Trereife, Madron, Scilly. Generally obtained in immature plumage, sometimes the dorsal and occipital plumes partly developed.

Little Bittern.—Very rare: a specimen was killed at the Lizard district. An adult male killed at Tresco, Scilly, in June 1866 (in my collection), another at St. Hilary.

Common Bittern.—Not uncommon at uncertain and generally distant periods; frequents morasses, sedgy moors, &c.

Night Heron.—Occasionally met with and specimens obtained from East and West Cornwall, also in immature plumage: a young bird was brought me alive, some years since, caught between Penzance and Newlyn. The cry of the bird resembled the word "qua, qua," uttered with a hard scream: colour of the iris, orange-red. The Lizard, Crowan, Scilly, &c.

(A few days since a male and female night heron were shot near Hayle on our north coast; they are both well-plumaged birds, with three occipital plumes: the female is a little duller in plumage than the male, but in other respects is very similar; the ovary contained eggs, some about the size of a small bean.—*May 2, 1870.*)

White Stork.—Very rare: only one recorded instance, and that at the Land's End, in May, 1848; it was obtained from the grounds of the late James Trembath, Esq., of Mayon House.

Black Stork.—Very rare: a good specimen killed either on the Tamar or Lynher, in 1831: this was the second recorded instance of its capture in Great Britain, and the specimen is in my cabinet.

Spoonbill.—Occasionally, and especially of late years, observed in various parts of the county; a flock of several was seen and captured at Gwithian; others have been obtained from the neighbourhood of Penzance, and also from Scilly.

Glossy Ibis.—On September 19th, 1854, I received information of the capture of the glossy ibis at Tresco, Scilly. I examined the specimen afterwards and observed that the plumage was immature, being that of a bird of the second year, the brown of the head and chin being streaked with white; upper parts of the plumage, including the tail, glossy greenish bronze with faint purplish tints. One said to have been killed at Paul.

Curlew.—Common on the sea-coast, and in harbours, creeks and estuaries: it is rarely seen in the summer months in this locality, but it is observed in the large moors about Roughtor, Brownwilly, &c., where it is known to breed.

Whimbrel.—Observed in the latter part of April, and again in the autumn, in going to and returning from their northern breeding-grounds: small flocks may be seen on the flat open beach between Penzance and Marazion. When disturbed their note resembles the words "luddle, luddle, luddle, luddle," quickly uttered.

Spotted Redshank.—Rare: occasionally met with in the autumn months. First observed at the Land's End in 1840, since which several examples have been obtained.

Common Redshank.—Not uncommon on salt marshes, and on sandy estuaries, in the autumnal and winter months; sometimes in the spring. Hayle estuary, Marazion marsh, &c.

Bartram's Sandpiper.—(See Yarrell's 'Supplement,' p. 40). A specimen of *T. Bartramii* was shot at or near Goonbilly, on the 6th of November, 1865, which I examined in the hands of the preserver, and is now in the possession of Dr. Bullmore, of Falmouth.

Green Sandpiper.—Several specimens obtained of late years from the Land's End district, towards the autumn: more inland in its habits than the last-named species.

EDWARD HEARLE RODD.

(To be continued.)

Extracts from a Memoir intituled 'A Monograph of the Alcidæ.'

By ELLIOTT COUES, A.M., M.D.

(Continued from S. S. 2214).

Simorhynchus pusillus (Pallas), Coues. — Habitat: Asiatic and American coasts of the North Pacific. Kamtschatka (Pallas). Semi-avine Straits (Mus. Smiths. Inst.) N. W. coast of America (Mus. Smiths. Inst.) Sitka, Russian Amer. (Mus. Pays-Bas, teste Schlegel).

In *size* the least of its genus, and the smallest known natatorial bird. Length (approximately correct) 5·50 inches; extent of wings —, wing from carpus to end of first primary 3·50; tail 1·10; tarsus ·75; middle toe and claw 1·10; outer toe and claw 1·00; inner toe and claw ·85; bill along culmen ·40; along rictus ·65; along gonys ·30; height at base ·20; width at same point the same or slightly less. (Compare these measurements, particularly of the bill, with those of *S. microceros*).

With the usual *form* of the genus, except as to the bill, the shape of which is specific. Bill without tubercles, or other irregularities of contour; straight, comparatively slender, compressed; height at base much less than length along culmen; width at base the same, or rather less than, height at same point; the apex more acute than that of *microceros*; the outline of culmen at first straight, then slightly convexo-declinate; commissure almost straight, a little ascending anteriorly, still not sinuous in any part of its length; gonys lengthened, at first convex in outline, then rapidly ascending in a straight line. Nasal fossa large, extending along the basal moiety of the bill, reaching from the culmen nearly to the tomia; not deeply excavated; nostrils small, narrow, linear, one-eighth of an inch long, basal, lying just above the commissural edge of the upper mandible. Frontal feathers running forward some distance in a rather narrow angle on the culmen, retreating very rapidly obliquely backwards and downwards on the sides of the upper mandible; extending on sides of the lower mandible a little further than on upper. (It is to be gathered from this description, more particularly, that the bill of *pusillus*, compared with that of *microceros*, is fully as long, but slenderer, more acute at the tip, less convex along culmen and gonys, more compressed in its whole extent, and non-tuberculate.)

Adult.—Entire under parts pure white; entire upper parts pure black, only relieved as follows:—The humeral and scapular feathers

are, all of them or most of them, white or whitish in some portion or the whole of their extent; producing two patches of this colour, not inaptly comparable to the similar patches on the scapulars of *Brachyrhamphus Wrangeli*, or *Collyrio borealis*, in size, shape and general appearance. About half the secondaries, the innermost ones, are quite conspicuously white on the tips of the outer web for a fourth or a third of an inch. The forehead and lores, from the base of the bill to the eyes and vertex, are lineated (exactly as in *microceros*) with sparse, distinct, very slender white setaceous feathers; none are apparent, among several specimens, behind the eye, or from the commissural angle of the bill. Pallas tersely summed up these points of coloration of the upper parts in saying "*Fronte brachiisque albonotatis*;" and the white about the "arms" is a strong distinctive feature of the species in comparison with *microceros*. The white of the under parts reaches far around on the side of the neck; on the side of the head it only extends on a level with the commissure; it does not quite attain the base of the lower mandible, being cut off from the bill by a small blackish lead-coloured area. There are indications of a small whitish spot just above and below the eye, formed of feathers of the ordinary texture. The under wing-coverts are wholly white, except just along the edge of the forearm. The short tibial feathers are dusky gray. Bill black (as nearly as can be determined from the dried specimens), the base, gonys and tip of lower mandible yellowish. Posterior aspect of tarsus, and inferior surface of toes and webs, blackish; rest of legs and feet a dull undefinable greenish-dusky (in the dried specimens).

The changes of plumage of this species are not known; no other condition than the one above described is represented by the specimens in the Smithsonian Institution, and none are contained, as far as known, in any other American museum. No. 21,320 of the Smithsonian collection, obtained from Capt. John Rodgers' expedition to the North Pacific, collected at Semiavine Straits, by Dr. Wm. Stimpson, is the one above described. No. 21,321, from the same locality, is a younger bird, but entirely similar to 21,320, except that it has a rather weaker bill, and only slight traces of the white setaceous feathers on the forehead. No. 46,562, collected September 9th, 1866, at Plover Bay, by W. H. Dall, of the Western Union Company's Overland International Telegraph Expedition, a young bird, as shown by the soft feel of the feathers and other features needless to detail, is referrible, with some degree of doubt, to this species. The scapulars

are very conspicuously white; the secondaries plainly tipped with white; the under parts pure white, unspotted as in typical pusillus. The black of the upper parts is tinted, especially about the head, with gray or plumbeous, and there are no traces of whitish setaceous feathers on the forehead; both of which features are to be attributed to the juvenility of the specimen. The doubt in the case centres in the bill. This organ has no trace of a tubercle, and is very small and weak, as usual in the young pusillus; but it *seems to be* deeper, and especially wider at the base, compared with its length, than is the case with typical pusillus; in these points of shape approximating to microceros. But "seems to be" is the most definite expression to be used in this case, for in the preparation of the specimen, or its subsequent drying or packing for transportation, the bill has been injured, and so much distorted, that its true form cannot now be determined with desirable precision.

It cannot be denied that the relations that this species bears to microceros are extremely intimate. So closely, in fact, does it approach the latter, that its specific validity might fairly be called in question by one of conservative views; especially in consideration of the well-known fact, not to be disputed, that the bills of all young Alcidæ are much smaller and weaker, and even in more striking points of form, conspicuously different from those of adult birds; and that a long time is required for their perfect development. This remark applies with especial force to the formation of the various knobs, ridges, sulci, rictal callosities, and the other irregularities of surface. The mere presence or absence, therefore, of the node upon the base of the culmen, cannot be allowed to constitute a specific character in the present case, and may be left out of consideration, as may be, also, the colour of the bill. Too much stress should not be laid upon the presence of white scapulars and of white tips to the secondaries, since in some specimens of undoubted microceros unmistakable traces of the former are to be found, and the ends of the inner secondaries are decidedly lighter than the body of the feathers. All the observable differences in the quantity and distribution of the whitish setaceous feathers upon the forehead and other parts of the head might readily enough depend upon a difference in the age of specimens. The pure uninterrupted white of the under parts of pusillus stands in apparently strong contradistinction to the black mottling of the same parts of microceros; but it is to be remembered that the coloration in this respect of the latter species is very variable, ranging from a very

sparse and scanty marbling to a nearly uniform black, particularly upon the breast, and is therefore not to be too implicitly relied upon, at least until it is more definitely ascertained than at present whether the black mottling tends to decrease or to increase with advancing age. If *microceros* grows more and more marbled with black as it grows older, we might with entire propriety presume upon the existence of a youthful state of plumage, in which the under parts are entirely white, like those of *pusillus*. Such is very likely the real state of the case; for the youngest examples of *microceros* examined—those which have no trace of a tubercle—are nearly white below, only very sparsely and indistinctly mottled with blackish. Still, aside from all these varying and therefore uncertain points, there appear good grounds for separating the two species, as will be observed on comparing the descriptions given in this and in the preceding article.

As the case stands with our present information upon the subject, *P. pusillus* is to be separated from *P. microceros*: first, by certain differences positively known to occur; *a*, in size, which is decidedly less, as evidenced by the measurement of all its dimensions; *b*, in form of bill, which is slenderer, more acute at the tip, not so deep at the base, particularly not so wide at the base, yet not shorter, than that of *microceros*: secondly, by certain differences very commonly observed, yet not proven to always hold good; *a*, absence of tubercle; *b*, conspicuously white scapulars and tips of secondaries; *c*, pure white under parts, uninterrupted by blackish mottling, and extending around on the sides of the neck; *d*, shortness and scantiness of the white setaceous feathers on the forehead; *e*, colour of bill, mostly black, not mostly red.

It only remains to notice the synonymy of this species; and all that is to be said on this score relates to the identification of *Alca pygmæa*, *Gm.* This name is founded upon the "Pigmy Auk" of Pennant,—a small species first described very loosely and imperfectly by the latter writer, whose account Gmelin merely renders into Latin in applying a binomial name. There is no doubt that the bird was one of the little auks of the North Pacific, as its very name, and the dimensions assigned (seven inches), clearly indicate, but there is no possibility, at the present day, of identifying it with precision. It was very possibly based either upon the present species or the preceding (*microceros*), and should these two ever be united, as young and old of the same, the name *pygmæa* might without undue violence be

assigned to the species so constituted. So long as they are regarded as distinct, the name *pygmæus* must not be applied to either of them. As far as we can judge by the description, particularly the expression "jugulo et pectore glaucis," *pygmæa* may not impossibly have been based upon *Ptychoramphus aleuticus*. But Mr. Cassin's supposition is perhaps as near the truth as any that could be advanced: "It is possible that the pigmy auk of Pennant, which is *Alca pygmæa*, *Gmelin*, may be the young of this species (*microceros*), but it is more probable, judging from the descriptions of *Gmelin* and *Latham*, that several small species have been confounded under this name." The same gentleman also calls attention to the fact, that some of the expressions in the diagnoses of the old authors have no basis in the characters of any *Alcidine* bird. Under the circumstances, it behoves us to ignore the name *pygmæa* altogether, since it cannot be identified; and to accept *pusillus* of *Pallas*, to which no possibility of doubt attaches, as the proper name of the present species.

Genus *PTYCHORHAMPHUS*, *Brandt*.

Size moderate; general form stout; not crested, nor with any elongated feathers about the head. Bill about two-thirds as long as the head, three-fourths as long as the tarsus, very stout, straight, somewhat conical in shape, slightly if at all compressed, without nodes or irregularities, the tip acute; culmen very moderately declinato-convex in outline, the ridge broad, more or less corrugated transversely at the base; the sides of upper mandible bulging, the tomial edges inflected; sides of lower mandible nearly upright, flat, longitudinally grooved for the greater part of their length, their tomial edges somewhat inflected; rictus straight; gonys straight, or nearly so, very long. Nasal fossæ long and wide, shallow, filled in with soft skin; that of the two fossæ meeting over the base of the culmen, and there corrugated as just described; nostrils rather long, narrowly oval, subbasal, opening at the lower border of the fossæ, the edge of the membrane that overhangs them elevated, flaring. Frontal feathers in a nearly transverse line across the base of the culmen, thence descending a little obliquely backwards, just behind the nostrils, to the commissure; those on lower mandible extending, in the interramal space (which they completely fill), to a point rather beyond a perpendicular from those on culmen; then, encroaching very little on the sides of the lower mandible, they retreat in a straight line rapidly backwards and obliquely upwards. Wings moderately long, narrow, pointed, the primaries somewhat

falcate, narrowing rapidly at the tip to an acute point, first longest, rest equally graduated. Tail short, broad, rounded, contained about three and a half times in the length of wing from the carpal joint; the feathers broadly rounded at their tips. Tarsus much shorter than the middle toe without its claw; about two-thirds as long as the middle toe and claw; greatly compressed, covered with small, very irregularly shaped polygonal reticulations; no large transverse scutella. Outer lateral toe as long as, or slightly shorter than, the middle; its claw not reaching the tip of the middle claw. Tip of inner claw reaching base of middle one. Claws compressed, acute, moderately arched, the inner edge of the middle one dilated.

This genus was instituted in 1837 by Prof. Brandt, for the reception of the *Uria aleutica*, of Pallas, its type and only species. It is strongly characterized by the bill, which is of a shape not even approximating towards that of any other Alcidine bird. Its points of structure in other respects are shared by the majority of the family,

Ptychorhamphus aleuticus (Pall.), Brandt.—Habitat: Pacific coast of North America, south to San Diego, California. Breeds on the Farralone Islands, Aleutian Islands (Pallas), Russian America, and whole west coast of the United States. (Mus. Smiths. Inst. and Acad. Philad.)

Adult.—Bill black, base of lower mandible whitish or yellowish. Legs anteriorly and toes superiorly bluish; legs posteriorly and toes inferiorly, with the membranes, blackish. A slight touch of white about the eyes. Entire upper parts blackish plumbeous, the head, wings and tail nearly black. This colour, gradually diluted until it is much more grayish plumbeous, extends around the under parts and sides of the head, the throat, upper part of the breast, and whole sides of the body under the wings. Greater part of breast, with abdomen and under tail-coverts, pure white; the grayish plumbeous of the upper breast merging very gradually into the white of the belly. Under surface of wings dark lustrous gray.

Young.—Very similar to the adult; differing chiefly in being more decidedly blackish on the upper parts.

Moulting specimens have the upper parts much duller and grayer, the old wing and tail-feathers faded, especially towards their tips, into light brownish gray.

Length 8·30 to 9·50; extent 16·00 to 18·50; wing 4·75 to 5·25; tail 1·50 to 1·75; tarsus about 1·00; middle toe and claw 1·40; outer

do. 1·80; inner do. 1·10; culmen ·75; rictus ·90; gonys ·60; depth of bill opposite posterior extremity of nostrils ·40; width ·30.

As regards colour, this species is remarkably constant. Hardly any other differences than those first noticed are to be found, after examination of extensive series; and they may all be summed up as merely varying shades of the same colour, and slight variation in its extent downwards upon the breast. The bill at all ages and seasons presents its peculiar parti-coloration. These remarks, however, probably do not apply to fledglings. As regards size, the species is perhaps unusually variable, as may be seen by the measurements given above, which represent extremes in those cases where two sets of figures are given, and the average in other measurements. The bill, in particular, is liable to great variation both in length and in stoutness. Some bills are very large and robust, nearly as wide as high at the base, rather obtuse at the tip, and with decidedly curved culmen and gonys; others are longer in proportion to their transverse dimensions, decidedly compressed throughout, acutely pointed, with almost straight culmen and gonys. The corrugations about the base of the upper mandible are sometimes nearly obsolete, and when present are very variable in character. Very likely they are hardly, if at all, apparent in life; for they seem to be produced mainly by the shrinking in drying of the skin covering the nasal fossæ and base of the culmen. All the variations exhibited by the numerous specimens seem to be merely individual differences, and are not sufficient to excite a suspicion that more than one species is represented in the series.

Mergulus Cassinii, *Gambel* (*Arctica Cassinii*, *Gray*), is now well known to be this species, first described by Pallas, as above quoted. The species has no other synonyms of consequence. Its striking peculiarities suffice to prevent misconception regarding it.

Subfamily URINÆ.—*MERGULUS* (*Ray*), *Vieill.*

Bill very short, culmen only three-fourths the tarsus, very stout, scarcely compressed, obtuse at the tip, as wide as high at the base, the sides of both mandibles convex or vaulted, the tomial edge of the upper greatly inflected, the culmen very convex in outline, with a broad flattened ridge, the rictus ample, much decurved towards the end, the gonys straight, very short, the inferior mandibular rami correspondingly elongated, widely divaricating, the interramal space very broad, the nasal fossæ short, wide, deep, partially feathered.

Nostrils subbasal, short, more broadly oval, or more nearly circular than in any other genus except *Synthliborhamphus*. Wings rather longer than usual in this family, acutely pointed. Tail of ordinary length, much rounded, the feathers rather narrow and subacuminate at tip. Feet small and weak; tarsus scarcely compressed, anteriorly broadly scutellate, posteriorly finely reticulate. Toes of the usual proportionate lengths. Size very small; general form very compact, stout.

A peculiar genus of the Alcidiæ, the most essential characters of which, as usual in this family, are found in the bill, though the other members offer some appreciable, if not salient, features. The squat bunched shape of the single species is very noticeable.

This is the genus through which a certain type of structure found among the Longipennes inosculates with the Pygopodes. The relationship of *Pelecanoides urinatrix* to *Mergulus alle* is one of strong analogy, if not of actual affinity, as has been elsewhere already pointed out by the writer.* Aside from the obviously Procellariid characters of the bill, *Pelecanoides* (representing the subfamily Halodrominæ) is strictly a Pygopodous genus, and is very nearly identical with *Mergulus* in all the details of external structure, and has much the same general habit. It is certainly the connecting link between the macropterous and brachypterous natatores, holding so strangely anomalous a position betwixt the two, that it cannot be with much propriety included under either. It seems entitled to the rank of a family, to take place between the Procellariidæ and Alcidiæ.

Mergulus alle, (Ray), Vieill.—Habitat: European and American coasts of the North Atlantic. On the United States coast, in winter, south to New Jersey. Numerous specimens in Mus. Acad. Philad., Smiths. Inst., Bost. Soc. Nat. Hist., Essex Inst., Cab. G. N. Lawrence, author's Cab., etc.

Adult, summer plumage.—Head and neck all around, and entire upper parts glossy black, with a beautiful metallic lustre of a shade of blue, when in highest plumage; scapulars edged with white; shafts and inner webs of primaries brown, lighter at base; secondaries tipped with white; under surfaces of the wings brownish gray; under parts from the breast pure white, with a few elongated feathers of the sides and flanks varied with black on the outer webs; bill black; legs and feet posteriorly blackish, anteriorly flesh-coloured (dull yellowish in the dried state).

* Cf. Pr. A. N. S. Philad., May 1866, pp. 172, 189.

Adult in winter.—As before; the white of the under parts extending on the neck and throat to the bill, on the sides of the head to the level of the rictus, on the sides of the nape over the auriculars (where it is somewhat marbled with black), or even to the middle of the nape, more or less confluent with that of the other side.

Young, first winter.—Recognizable by its smaller and weaker bill, by the duller and more brownish black of the upper parts, almost wanting in gloss, and by the greater extension of the white upon the sides of the hind head and neck. The scapulars and coverts are conspicuously marked with white, as in the adult. The feet are mostly dusky.

Length 8.50; wing 4.75; tail 1.50; tarsus .80; middle toe and claw 1.20, outer do. 1.15, inner do. .85; bill along culmen .50, rictus 1.00, gonys .20; its depth at base .35, its width at same point about the same.

When in mature plumage this is a very beautiful species. No other Alcidine has such lustre of the dorsal plumage, traces of which are even found in adult winter specimens. In the latter the extent of the black upon the throat is indicated by a dusky clouding of the bases of the feathers of the parts. The species is ordinarily subject to only moderate variation in size or colours. The condition of albinism has been described.

The first chronicles of this species are of great antiquity. It appears to have shared for a time with *Uria grylle* the soubriquet of "*Columba grœnlandica*." Since its description as *Alca alle*, by Linnæus, it has been the basis of very few synonyms. *Alca candida*, of Brûnnich is this species in the albino state. *Mergulus melanoleucus*, *Ray*, is adopted by many authors. Mr. G. R. Gray adopts Mœhring's generic appellation.

(To be continued.)

On a Shark captured in Mount's Bay on June 11, 1870, supposed to be identical with the Basking Shark of Pennant and the Broadheaded Gazer of Couch. By THOMAS CORNISH, Esq.

ON the 11th of June, about half a mile off Penzance pier-head, in less than three fathoms of water, I captured in my trammel a shark nine feet long and of very peculiar appearance. The fish had rolled

itself up in the net, and by so doing had tied down its fins and gill-covers, and was consequently enfeebled by partial suffocation when I took it. With some difficulty my boatman succeeded in getting it clear of the net and in slipping a tow-rope over its head, and it was towed on shore uninjured, where I had ample opportunity of examining it alive and in the water, as well as afterwards on shore alive and dead. It was a shark of which I had never seen a specimen before, and of very peculiar appearance. It had a small head, a very remarkable snout, with a beaked projection at the end of it, a very wide mouth, enormous gills, and very great fin power.

The skin of the fish was smooth from head to tail, and rough the other way, but was neither so rough nor so smooth as in most of our English sharks.

The colour of the fish, fins and all (except the snout), was dark dusky blue, a little lighter immediately on the belly, and lighter still under the pectorals, but in no part approaching white. The snout shaded off from the prevailing colour to a dull red, and from that to a dirty white in front just under the beaked projection.

The snout was also covered all over with little marks, as though one had cut the skin half through with a penknife in a great number of places, without attempting to make the incisions in any regular series. Afterwards I ascertained that this punctured skin rested on a strong gristle, within which was a cavity filled with a gelatinous substance. On the under and outer parts of the snout were single-lobed spiracles, and above and behind them and nearer the lower than the upper part of the snout were the eyes, round and not oblong, and gazing laterally and not forward, and having internally the mobile formation usual in the eyes of sharks. Just before the eyes on the top of the head was a protuberance covered by the skin, and just behind the eyes the head proper terminated. The under part of the head was occupied by a very remarkable mouth, the lower jaw of which extended forward to the plane of the eye, and which when open was of a comparative size and capacity, of which I never saw the equal in any shark, or indeed other fish except the angler (*Lophus piscatorius*). In each jaw were three and in some parts four irregular rows of rudimentary teeth, not one of them one-sixteenth of an inch long, and detached from each other. They were inclined inwards, but were so small and blunt that they presented no obstacle to the running of a thumb-nail backwards and forwards over them. There was a smooth tongue not six inches long and semi-detached, and immediately at the

root of the tongue was the base of the first gill-ray. The gills themselves, five in number, were the most extraordinary part of the whole fish. The gill-rays and openings extended from the top of the head right round to the throat; the rays were of unusual size and strength. The gills were very large and fleshy, even considering the size of the openings and of the fish, and in front of each, attached by a strong flexible cartilage to the ray, was a slight elastic apparatus extending the whole length of the ray, an inch and a half in depth, and which would be precisely represented by a thin small-toothed comb made of whalebone.* When the mouth was opened during the life of the fish these gill-rays were seen forming part of the sides of it, and behind them was the very capacious swallow, and as the mouth opened the little whalebone combs involuntarily fell back to a right angle with the gill-ray, and effectually barred the egress through the gills of anything except water which might have been taken into the mouth. The interior of the gill-rays and mouth were covered with a soft white substance resembling chamois leather.

The greatest girth of the fish was round the gills, immediately behind which the body fell off to the greatest girth of the body at the pectorals. The body at its greatest girth (and throughout its length) was round, just as broad as it was long, and thence tapered gradually to the tail, becoming somewhat flatter and broader as it approached the fork of the tail. There was no lateral line visible either during the life of the fish or after its death. The pectorals, lying low and close behind the gills, were of large proportionate size. The first dorsal, situated about half-way between the pectorals and the ventrals, was also large, rising thirteen inches above the back in the perpendicular line. About half-way between the pectorals and the fork of the tail were two large ventral fins, but no claspers (the fish was a female); immediately behind them was the vent, and between the ventrals and the tail was a small anal fin, just under and a little behind a small second dorsal. The tail was very large in proportion to the size of the fish, measuring little short of three feet in a straight line from the extremity of the upper to the extremity of the lower lobe. There was no appearance of any keel-like formation at the sides of the body as it approached the tail; but I afterwards found that for some distance from the tail the sides of the body consisted of

* Pennant describes something of this sort in his account of the "basking shark." He says "Within the mouth towards the throat is a very short sort of whalebone."

strong cartilaginous substance, almost as close and hard as the main bones of the fish. There was nothing unusual in the intestinal appearances. There was the short gut usual in sharks and much digested food, but the stomach was empty.

The fish was in excellent condition; the flesh was firm and very white and fat. The skin was thin, and, whilst the fish was alive, very tight-fitting: after the death of the fish it became flabby and loose.

The fish looked like a rapid swimmer, whose large gill-surfaces would invest it with any amount of "slaying" power. The size of the mouth and teeth, and the peculiar pectinated arrangements in the gill-rays, and the intestines, suggested that its food was probably small marine animals of some sort, and that its mode of feeding was analogous to that of the whale.*

The measurements were :

	Feet.	Inches.
Over all	9	1
Eye to fork	6	8
Beaked projection of snout	0	2
Extremity of snout to spiracle	0	8
" eye	0	10½
" origin of pectorals	2	7
" " first dorsal	3	7½
Length of pectoral	1	5
Length of the base of the first dorsal	0	8
Perpendicular height of first dorsal	1	1
Extreme breadth (fore and aft) of first dorsal.	9	11½
From end of base of first dorsal to origin of second dorsal	1	7½
Height of second dorsal	0	4
Base of second dorsal	0	2½
Extreme breadth (fore and aft) of second dorsal	0	5
From base of second dorsal to fork	0	10
Upper lobe of tail, consisting of two fins, a large one with a small one near the top	2	2
Lower lobe	1	4
From origin of pectoral to origin of ventrals	2	3
Length of ventrals	0	8
Extreme breadth of ventrals	0	7
Origin of ventrals to origin of anal	1	3½
Length of anal	0	3½
(Origin of anal a little behind origin of second dorsal).		
Gape across the jaws	1	0

* Pennant says of the basking shark, "Linnaeus says they feed on Medusæ."

	Feet. Inches.	
Length from the joint of the jaws to the extremity of the lower jaw in a straight line.	0	7
Width across the beaked projection	0	2
„ snout behind it	0	5
„ eyes (the widest part of the head proper)	0	6
„ the gills	1	2
„ the body at the origin of caudal	0	5
Girth across gills	3	0
„ behind pectoral fin, which was the greatest girth of the body	2	7
„ near tail (where the width was 5 in.)	1	1

If I were called upon to distinguish this fish from the “basking shark” of Pennant, I should feel great hesitation in doing so. The only positive distinction to which I could point would be the marked difference in girth as compared with length of the body in the figure given by him, and in my specimen I might perhaps also point to the difference in the conformation of the snout and gills, and negatively I could refer to his omission of all mention of the spiracles and their position. The carinations on either side of the tail, which Pennant notices in his large specimen may be the result of mature years, and represent the ultimate form of the strong gristle which I found in the same place in my specimen; and it is possible that the girth of the figure given by Pennant may be due to the accidental ignorance of the engraver: on the whole, I am inclined to think that Pennant’s “basking shark” was probably of the species to which my fish belongs; but if so, then I say that the basking shark of Pennant is not the basking shark of Yarrell and of Couch. The resemblance of my fish to the basking shark, as described by these two naturalists, is in the large size of the gills, the punctuated muzzle, and the number and arrangement of the fins. And no doubt these things point to a similarity in the habits of the two fish, but the points of difference are so numerous, and especially the comparative girth of the body to the length of the whole fish (for I do not admit that in the case of these two recent authors the proportions may be an engraver’s error), the size of the teeth,* and situation of the spiracles, that I have very little hesitation in pronouncing that it is not the basking shark of these two authors.

There are two other sharks mentioned by Couch from which my

* Pennant says, “Each jaw is furnished with small teeth.” Couch says, “The teeth are one inch long.”

specimen has to be distinguished,—the Rashleigh shark and the broadheaded gazer, for which he formed his genus “Polyprosopus.”

My fish differs from them in the essential particular that its vision or gaze is not directed forward; but a careful consideration of all the facts inclined me to think that probably this forward outlook was noted in these two sharks by an error of observation. Confessedly Couch never saw either of the two fish he describes: he is careful to state that the account and figure which he had of the gazer came from a person “curious, but scarcely well-informed.” He tells us of the Rashleigh shark that he had the figure of it from a gentleman who was a naturalist, but it does not appear that that gentleman saw the fish himself, and the very loose description which was all he could give of it is almost conclusive that the fish was never seen by a naturalist acquainted with fish. Besides which, in the sketch of the fish given there is an utter absence of any attempt to account for a mouth, and a torn and ragged dorsal is accepted as a perfect fin. This absence of attempt to account for a mouth is also a prominent feature in the sketch of the gazer;* and I remarked in my fish that when it had been dead for twenty-four hours, and its gills had lost the elasticity of life, they fell forward in a flabby mass, totally concealing the mouth, and presenting an appearance not unlike the figure of the head of the gazer given by Couch (vol. i. p. 69), only that the eye did not look forward and the gill-openings were on and not behind the broad part behind the snout.

Considering these things and the unwieldy size of the two fish

* This refers to the figure given in the body of the work (vol. i.). In the Appendix to Couch's Fishes is given another, and much more accurate, figure of the same fish; but the shapes of the fins are doubtless peculiar, and on comparing them with the letter-press they will be found not to scale. A better description of the same fish is to be found in the Transactions of the Penzance Natural History and Antiquarian Society for 1854, in a paper by the same Mr. Couch, “On two Species of Sharks believed to have been confounded together under the name of ‘The Basking Shark’” (p. 234). In this he mentions the small ray-like teeth of the gazer, and, noticing the difference in bulk between it and the Rashleigh shark, supposes the former may have been an emaciated specimen of the latter, and that its sick condition may have accounted for its presence in shallow water, saying, “There can be no doubt that its usual residence is at the bottom, and that, too, in very deep water.” Couch also says in this article, “The summit of the head was much wider than the body above the gill-openings;” and he thinks this another sign that the fish was emaciated. Owing to his not having seen the specimen he was led into an error about the size of the head, but this description of the bulk of the body at the gill-covers precisely agrees with the observed shape of my fish.

figured by Couch, one twenty-nine feet four inches long and the other over sixteen feet, it seems to me more probable that unskilful observers should be mistaken than that two sharks should wholly depart from the shark type of eye.

Couch's figure of the broadheaded gazer, from the gills inclusive to the tail, precisely agrees with my fish, and but for the observed girth of the Rashleigh shark I should be much inclined to say they are all three of the same species of fish; but, as the facts stand, I for myself am inclined to think that the Rashleigh shark was a basking shark of Couch and Yarrell (which species itself has apparently never been observed with sufficient care to establish the shape and position of its mouth), and that Pennant's basking shark, the broadheaded gazer and my fish are sharks having affinities to the basking shark, but sufficient specific differences to establish them as distinct: and if I were called upon to describe my fish by the peculiarity which first struck observers I should call it the "snouted shark" (say *Squalus rostratus* or *Cetorhinus rostratus*).

On the inner side of the pectorals and on each side of the fork of the tail were colonies of the ordinary shark parasite.

The skin of the fish has been successfully set up for the Natural History Museum at Penzance.

In the very same coil of the net which enclosed the shark I took two other fish which would have been well worth a separate notice under any circumstances. They were two specimens of the black fish (*Centrolophus pompilus*, Cuvier). They were meshed in the net, and had evidently struggled severely before they were tied up tightly in the roll of net made by their gigantic fellow-prisoner. At first I thought they might have been swallowed by the shark and ejected in his struggles; but the fact of their being meshed was against this, and on careful search afterwards I found them quite fresh and free from any trace of digestive action. Recollecting the habits of the pilot fish, and that the *Pompilus* is allied to it, it is curious to observe the presence of these two in company with a strange shark, but further observation alone can show whether their simultaneous presence and capture in our waters was a mere coincidence, or whether the black fish were in company with the shark. It is to be remarked that the solution of this question will probably have a most important bearing on the question of the identity or otherwise of my shark with the basking shark of Pennant. The black fish is a southern fish, the

basking shark is a northern fish, and if the black fish were the companions of my shark it probably came from the south and not from the north. The larger of the two specimens of *C. pompilus* was a little over eighteen inches long.

THOMAS CORNISH.

Penzance, July 21, 1870.

Sun Fish on the Dorsetshire Coast.—A very fine specimen of this monster of the deep was captured in the bay on Thursday afternoon last. Mr. W. Anderson, of Bread-street, London, who had been staying in the town for a short time, was cruising in a little yacht during the afternoon, and suddenly espied this strange object lying on the surface of the water, basking in the sunshine. On perceiving a movement, having a gun with him, he discharged the contents of a couple of barrels, which lodged in the side of the head. Plunging suddenly down and almost as quickly rising to the surface, the opportunity of capturing had eagerly to be watched. Another shot had to be fired, which seemed to hit some vital part, and a noose was quickly fastened at the back of the fins, and the huge thing with some difficulty brought ashore at Cobb-gate. It measured five feet six inches long and six feet four inches deep, measuring from the extremities of the large fins, and is supposed to weigh from six to seven cwt.—*Alwin S. Bell*; 4, *Royal Terrace, Weymouth, July 22, 1870.*

Sun Fish at Abbotsbury.—An extremely fine specimen of the short sun fish (*Orthogoriscus Mola*) was taken in a seine at Abbotsbury on Wednesday. The weight was estimated at not far short of a ton. The length was about five feet, and the breadth nearly the same. The fish was bought by Mr. Vincent and taken to Weymouth for exhibition. Probably the continued calmness of the weather had caused the appearance of this creature on our coast, from the warmer latitudes (Mediterranean, &c.), which it usually inhabits. The fish was placed in the marquee in the new gardens at Weymouth, and exhibited at twopence each visitor. Large numbers of the Medusæ, or common jelly-fish, about the size of a parasol, have also entered Weymouth harbour during several days.—*Id.*

Black Variety of Montagu's Harrier in North Devon.—Mr. Shopland, bird-preserved, of Torquay, showed me to-day a very beautiful adult pair of the dark race of Montagu's harrier, which were sent to him from North Devon, on the 7th of May, to be stuffed, and informed me that he found in the stomach of the male six young partridges, and the remains of some sky lark's eggs and of three or four sand lizards: the stomach of the female harrier also contained the remains of several sand lizards, together with those of a slow-worm and a field mouse.—*J. H. Gurney*; *Marldon, Totnes, July 16, 1807.*

[The three following notices respecting this interesting variety are extracted from the 'Field' newspaper.—*E. Newman.*]

Black Montagu's Harrier.—I had brought to me last Monday, the 20th of June, a most peculiar-marked specimen of Montagu's harrier. It was a male bird, and of a uniform black-blue colour. On dissection, I found in its crop six young sky larks, and in its stomach three more, and five sky lark's eggs; three were broken in two, and

one had a small hole in it, evidently made by the harrier's beak; the other, which I have blown, is quite perfect. Is it usual for the harriers to swallow the eggs whole, without tapping them? The eggs were in the stomach, not the crop.—*B. Bates; Eastbourne.*

Black Montagu's Harriers.—A black variety of Montagu's harrier would seem to be not uncommon in Africa and Southern Europe, but does not appear to have been observed anywhere in Asia, where the species is more or less abundant. Mr. Howard Saunders mentions obtaining "two very black males of *Circus cineraceus*" near Seville ('Ibis,' 1869, p. 400). There is a very fine black male of this species, having a roseate gloss upon its upper parts, in the Canterbury Museum, shot near that city; and in the Dover Museum I observed another, and was told by the conservator there that he had seen five or six like it in the course of his experience. I am unaware that a similar melanous variety has been observed of either of the gray harriers, *C. cyaneus* and *C. Sykesi*. All three are common in India, but the second only in its northern provinces.—*Field.*

Black Montagu's Harriers.—With reference to the black Montagu's harriers, I find that Mr. E. L. Layard, in his work entitled 'The Birds of South Africa' (p. 35), introduces and describes a *Circus maurus*, *Temminck* (*C. ater*, *Gray*, nec *Vieillot*), but mentions that "by some writers this species is thought to be a black variety of *C. cineraceus*," which to my apprehension is undoubtedly the case. He states that "This very handsome harrier is not at all uncommon in the neighbourhood of Cape Town, and is generally seen in pairs, beating the bushes for prey, and quartering the ground with the regularity of a pointer dog;" but he does not mention any diversity in the plumage of the sexes or of the young. "After a few heavy flaps with its wings," he adds, "it sails along with its pinions elevated, swaying to and fro like a clock-pendulum; suddenly it checks itself, lets fall a leg, clutches up a cowering lark or unsuspecting jerboa" (gerbelle rat?), "and flies away with it to the nearest termite heap, on which it perches and commences its repast. If accompanied by its mate, a shrill stridulous cry soon brings it to its side, and the dainty morsel is shared between them. It breeds among reeds, making a thick heavy nest on any elevated root that may lift it above the water. The eggs are said to be white." The ash-coloured *C. cineraceus* is asserted by Mr. Layard to be rare in South Africa. Another well-qualified observer, who is familiar with the Ornithology of the South of Spain, assures me that *C. cineraceus* is there the commonest of the three gray harriers, and that black individuals of it are by no means infrequent. It is remarkable, therefore, that the latter do not appear to have been observed anywhere in Asia, where the species is widely distributed.—*Id.*

On the Southern range of the European Merlin.—Dr. Jerdon, in his work on the 'Birds of India' (vol. i. p. 35), includes the merlin (*Hypotriorchis Æsalon*), and thus refers to its range in India:—"The merlin appears a very rare visitant to the extreme north-west frontier of India, during the cold season only. Dr. Adams observed it in the north-west of the Punjab. Mr. Blyth, in his Catalogue, gives the north-west Himalayas with a query." The Punjab is about the same latitude as Lower Egypt, and, though giving the merlin a great easterly range, bears out Mr. Gurney's opinion in the 'Zoologist' (S. S. 2221) as to its southern limit.—*H. W. Feilden; Chester Castle.*

Brunnich's Guillemot.—Is there any record of the occurrence of this species at the Farne Islands? I have an egg, taken there in June, so exactly resembling the figure

given in Hewitson's 'Illustrations of British Birds' Eggs,' that I think it must have been laid by a bird of this species. Out of several dozens I can find no other like it in form, which is "more like eggs of the razorbill." As I did not see the bird, I can give no opinion upon that point. In Mr. Hewitson's description of this egg is this passage, on the faith of Mr. Hancock, "However white the ground-colour may appear to be, the shell of the eggs, upon holding them to the light, is *always dyed with greenish blue*, which is not the case with eggs of the common guillemot, the ground-colour of which is often tinted with yellow." I should like to know the experience of collectors upon this point. So far as my limited experience goes, there seems no reliance to be placed upon it, even approximately. I find that eggs of the common guillemot *apparently* quite free from any green or blue tint are *generally* a dirty or yellowish white when held up to the light, whilst eggs with any apparent tinge of blue or green are these colours when looked through: of course the shadings of colour vary so much that it is often necessary to examine very closely and discriminate very nicely as to the presence of blue or green, but the above seems to me to be a rule with the eggs of the common guillemot.—*T. W. Gissing; Wakefield, July 18, 1870.*

Increase of Rock Birds at Flamborough.—I am happy to say that there is a marked increase in the number of sea-fowl breeding this year at Flamborough and the adjoining cliffs. On the 20th of June I visited Speeton and Bempton cliffs, and accompanied the egg-climbers in their round. Old Aaron, the cragsman, who has been climbing for thirty-eight seasons in succession, assured me that there were a greater number of fowl on the cliffs this year than he had seen for ten or twelve years, though nothing to equal what there was when he was a boy. On the 22nd I took a boat from Flamborough, and went along the cliffs: the fishermen in the boat also noticed the great increase of the birds this season, and pointed out places tenanted by fowl which have been vacant for ten years prior. This speaks well for the Sea-fowl Preservation Act.—*H. W. Feilden.*

Dwarfs.—To the north of Mani Kesock (King Kesock) are a kind of little people called Matambas, who are no bigger than boys twelve years old, but very thick: they live only upon flesh, which they kill in the woods with their bows and darts: they bring in elephants' teeth and tails. If any stranger pass their dwelling they immediately remove. They kill the pongos with poisoned arrows. Here we have Du Chaillu's dwarf gipsies much about where they should be, dealing in elephants' teeth and tails. The tales of Andrew Battel puzzled me till I turned to Du Chaillu, and found that elephants' tails were a great fetish.—*Kingsley's 'Tales of Old Travel'* (p. 76.)

Proceedings of the Entomological Society.

Note to June Meeting.

Since the Meeting, the following notes have been furnished by Major Munn:—

"At a recent Meeting at Nuremberg, the bee-masters talked of the life of the queen-bee as extending to four and five years, and I am not sure that some

works on bee-management have not given even seven years. My own observations confirm the Report made to this Society on the duration of life in the queen, drone, and worker of the honey-bee, by Mr. J. G. Desbrough, who has given some excellent calculations and facts; and the following results have been arrived at since the introduction into this country of the Ligurian bee. In October, having got together two swarms of the brown bee, the queen was removed, and a Ligurian yellow queen was introduced; she remained, and raised the stock in May, when every bee was a true Ligurian. Again, this Ligurian stock being strengthened in October with other Ligurian workers, a brown queen was introduced from another apiary; in May, every bee was found to be of the true home-bred brown form. This settled the question of the age of the workers, taking the winter half of the bee-season. Having raised and saved a hive filled with drones, and allowing them to exist in the stock by destroying the impregnated queen and by keeping the bees employed in attempting to raise queens, October found the drones hatched and located in the hive; but to prevent their slaughter, the queen was removed, when the drones lived, and perished almost the last in the stock in the month of January. With regard to the queen, the exhaustion of the two ovaries constitutes in my opinion the life of the queen, which would only extend to the second season of egg-laying, provided the queen were left in her normal condition, free to go and come into her hive, in a mild and equable climate, and amidst an abundant harvest of honey and pollen for the workers to collect and feed the larvæ.

“I turn now to the question, How are the larvæ fed, and wherein is the feeding different for the queen-bee? Take the worker first in order: the egg, having been attached on one of the rhombs at the base of the hexagonal cell, hatches after three days, and even six or longer, according to the season; the small white maggot exhibits no trace of external organs or members, but on closer examination by the lens, shows a very imperfect oral apparatus or mouth, for the reception of food as has been commonly stated by all writers; through this imperfect apparatus the workers are supposed to feed the larvæ. Prof. Westwood informs me the mouth is quite perfect when the larva is full-grown, and on the lower lip a pair of spinnerets may be found, with which it spins its cocoon preparatory to becoming a pupa. Moreover there is no anal orifice, as no food passes through the stomach until just before the final change to the pupa. Why then should not the first stage of the larval existence be maintained and increased by endosmosis or absorption? The larvæ are not fed whilst in the cells, but are constantly lubricated with honey and water; the larva has no motion, nor can any impulse be given it by the application of turpentine or the prick of a needle; it is simply a sack, with markings of a mouth, with the body divided into thirteen or fourteen rings, along the sides of which may be seen the ten spiracles or breathing holes, or perhaps in this stage glands as well, to convey more perfectly the nourishment, and form the ganglia of the perfect bee.

The changes in internal structure are rapid; one day you find a mere integument, filled with corpuscles of white creamy-looking flakes—which on chemical analysis I find to be grape-sugar and water, the very material with which the nurse-bees lubricate the larvæ (this however in the queen-cell forms a strong pulpy bed, upon which the larva rests, but of which the worker and drone cells contain none, whilst in the queen cell the jelly occupies nearly a third of the cell, making it as it were a hot-bed around the queen larva)—a third day will show the œsophagus commenced and the silk-forming glands also formed on either side, and thus ready on the fifth day to be used through the spinnerets to spin its cocoon—an act which is a marvel to me. I have discovered that the bees do not form the silken respirator as has been hitherto stated, nor do they hermetically seal up the cell, but leave the larva to finish the silken respirator, and merely cover the sides and angles of the cells so as to strengthen them, and make them fit to pass over, like stepping stones over the heads of the pupa, now resting to pass into the perfect or imago state. This the worker accomplishes in twenty days, the drone in twenty-four, and the queen in sixteen, subject to variations of weather, but as an average correct.

“I have much to state of the impregnation of the queen-bee and against the parthenogenesis theory of the present day, or the power of the queen to leave her eggs unfertilized so as to produce either workers or drones. I believe the female is the early impregnation, and the male the later impregnation, as found in fact amongst animals as a rule, especially in cattle; the last of a series of ova become drones, and the earlier the workers. The eggs all have to pass through the common oviduct, and thus pass the mouth of the spermatheca: now whilst there is no doubt there are muscles, as Siebold has proved by dissection, to extrude or restrain the eggs, these voluntary muscles have to be guided. Siebold and Dzierzon say that instinct will tell the queen when to exercise her judgment truly: at the moment when she pushes her abdomen into a wide drone cell or the narrow cell of the worker, the distinction of the wider and narrower cells will certainly be felt out by a normal queen with her abdomen; (but here let me remark this queen's abdomen, if about to lay her last series or drone eggs, is larger and heavier than in her first laying workers' eggs in the spring); but, says Siebold, she well knows by the sensation of the touch that she must fertilize the eggs to be deposited in a narrow cell, whilst she has to lay the egg without fecundation in a wide cell. But it is a fact that eggs are laid constantly in unfinished workers' cells, and extruded as well into drone cells, two or three eggs in a cell, when the queen has by some cause been driven to delay laying after impregnation. But the fecundated egg being required for the queen-bee, Dzierzon and Siebold have to find another reason, and they add that ‘by the peculiar texture of an incomplete royal cell too, a normal queen will be instinctively induced to fertilize the egg to be deposited in it.’ I believe Prof. Owen has been misquoted by Siebold and Dzierzon; and I feel assured that the latter has also accidentally misdirected Siebold that

the eggs of queens "are only of one of the same kind, which when they are laid without coming into contact with the male semen become male bees, but, on the contrary, when they are fertilized by male semen produce female bees." I must leave the matter at this point; although I have ample evidence to prove the impregnation of the 'fertile workers' as well as the normal queens, and to show how mistake has crept into the microscopic dissections of the eggs, when every egg must be fertilized in passing the spermatheca, especially if the eggs be all of one size, as has been stated by Dzierzon; but the entrance of the spermatozoa is at the base of the egg (the future mouth of the larva), and absorption introduces the semen into the egg, as I shall be prepared to show on another occasion.

"Briefly, my facts are these. A fertile impregnated queen lays eggs, female and male in succession: these are all necessarily fertilized as they descend through the common oviduct whilst passing the spermatheca; and each spermatozoon, adhering to the base of the egg, and agglutinated to the cell by the queen, in due time enters the egg, the chorion is broken, and the larva is seen when the small transparent sack is floated in the sugar and water: here I believe the endosmosis process takes place; as to the development of the larva the first process is the completion of the silk glands, then the main canal seems to be formed more distinctly, the anal passage never being opened until the larva is fully filled, if I may so term it, or the growth of the larva accomplished, when the spinnerets come into use, and the larva having discharged a small deposit in one corner of the wax cell (which black or brown substance may be seen in cells newly occupied for breeding), the spinning from the foundation commences, and finally the larva, finishing the silken respirator at the top, is found with its head upwards, and in due time gnawing its way out at the top, emerges either as a drone or worker from the confined cells, whilst the occupants of the large cells, with the larger supply of jelly and a more rapid absorption of sugar and water or honey and water, emerge as the perfect queens. When the bees raise 'fertile workers,' these never have jelly given them, and are fed up at a later period of their larval stage, and have neither space nor time for expansion."

July 4, 1870.—A. R. WALLACE, Esq., President, in the chair.

Additions to the Library.

The following donations were announced, and thanks voted to the donors:—
 'Bulletin de la Société Impériale des Naturalistes de Moscou,' 1869, Nos. 1—3; presented by the Society. 'Bulletins de l'Académie Royale des Sciences de Belgique,' 2d series, vols. xxvii., xxviii.; by the Society. 'Verhandlungen der k. k. zool.-bot. Gesellschaft in Wien,' vol. xix.; by the Society.

‘Mittheilungen der Schweizerischen entomologischen Gesellschaft,’ vol. iii. No. 4; by the Society. ‘Exotic Butterflies,’ Part 75; by W. Wilson Saunders, Esq. ‘Lepidoptera Exotica,’ Part 5; by E. W. Janson, Esq.

The following additions by purchase were also announced:—Gemminger and Harold, ‘Catalogus Coleopterorum,’ vol. vii. Thorell, ‘Remarks on Synonyms of European Spiders,’ No. 1.

Election of Members.

The Rev. F. A. Walker, M.A., of Elm Hall, Wanstead; and Edward Mackenzie Seaton, Esq., of 28, Belsize Park; were severally balloted for, and elected Members.

Exhibitions, &c.

Mr. E. G. Meek exhibited various species of *Dianthœcia*, including *D. Barrettii*, *D. compta* and *D. conspersa* from Ireland, and *D. conspersa* from the Isle of Man. Also a remarkable *Bombyx* from near Douglas, Isle of Man; which was considered by Mr. Stainton to be a dark variety of *Glyphisia crenata*.

The Hon. T. De Grey exhibited a series of *Oxyptilus lætus* (Zeller), from Brandon, Suffolk.

Mr. M'Lachlan, on behalf of Mr. Tegetmeier, exhibited some nature-printed butterflies, the bodies and antennæ being painted by hand: they were so admirably executed as to have been taken for lithographs, and were offered for sale as such by an eminent firm.

Mr. Blackmore exhibited a number of insects, chiefly *Lepidoptera* and *Coleoptera*, the result of last winter's collecting in Tangier. Among the butterflies was a fine series of the true *Anthocharis Euphæno* (Linn. sp.), a species till recently mistaken. Among the *Coleoptera* was a curious monstrosity of *Pimelia scabrosa*; the right-hand antenna was doubly furcate, or rather there were two antennæ, of which the two basal joints were united; branching from the third joint, the right hand fork was of normal form, but the left hand fork was again furcate, a small two-jointed limb springing out (at the top, not at the side) of the 8th joint of the fork (*i. e.* the 10th joint of the antenna).

Mr. F. Moore exhibited cocoons of a *Sagra* from Bombay, collected by Mr. Newton; three cocoons with the beetles which had emerged therefrom were shown *in situ*, and lay contiguous within a large swelling in the stem of a creeper (*Cocculus macrocarpus*).

The President read the following extract from a letter, dated “Sarawak, 17th April, 1870,” from Mr. A. Everett;—

“My brother has found two remarkable spiders. One, which we had not the means of keeping at the time, was lying with its legs pressed closely beside its body, and was white streaked with black in irregular fashion: when he called me to see it, I looked closely but in vain for it, the only thing visible

on the leaf being apparently a patch of bird's dung; when it moved, one saw immediately what it was. The other is similar in colour and behaviour, but seems to belong to a different genus, and the resemblance to the droppings of a bird is not so completely deceptive. These would appear to be instances of protective mimicry, and as such will perhaps be of interest to you. I have another example, almost if not quite as evident: I had a caterpillar brought me, which, being mixed by my boy with some other things, I took to be a bit of moss with two exquisite pinky-white seed-capsules; but I soon saw that it moved, and examining it more closely found out its real character: it is covered with hair, with two little pink spots on the upper surface, the general hue being more green: its motions are very slow, and when eating, the head is withdrawn beneath a mobile fleshy hood, so that the action of feeding does not produce any movement externally; the shape is oval, and the edges are fringed with tufts of hair: it was found in the limestone hills at Busan, the situation of all others where mosses are most plentiful and delicate, and where they partially clothe most of the protruding masses of rock; I placed it in spirit, but it has become shrunken and turned to a dirty yellowish colour. Such things, however, require to be seen alive in order to properly appreciate the close resemblance they bear to the particular objects they resemble."

Mr. De Grey mentioned that he had often been struck by the resemblance of the caterpillar of *Melitæa Cinxia* to the flower of the plantain upon which it feeds, whilst the pupa resembled the seed of the same plant.

Mr. Albert Müller exhibited some galls on *Ammophila arundinacea*, found last autumn by Mr. J. Traill about two miles north of Aberdeen; they occurred rather abundantly on stunted specimens, one gall on each plant. The gall consisted of the imbricate closely-sheathed leaves of a top-shoot, which contained a single longitudinal narrow cell, from two to three lines long, the upper part of which was pierced by the escaping insect. The insect, however, had not yet been detected.

The Secretary exhibited a large woolly gall of the oak and a number of living specimens of *Cynips ramuli* which had emerged therefrom. The gall was found on the 24th of June, at Idsworth, near Horndean, by Sir J. Clarke Jervoise, Bart., who wrote respecting it as follows:—

"My attention was yesterday called to what I thought was a ball of sheep's wool in a meadow where there were no sheep, and I placed it under a glass clock-shade for security. This morning I found the clock had stopped, and a quantity of flies were in the case and in the works of the clock. I never happened to have seen a similar growth on the oak, a sprig of which is visible in the woolly gall, and I have sent some of the flies in spirits. There are more hatched out in the box since I placed the oak-gall in it." How many specimens of the *Cynips* hatched in the clock-case did not appear, but the box exhibited was found to contain upwards of eighty.

Prof. Westwood made some observations on a very minute form of Acaridæ, to which he had already directed the attention of the Society (see Proc. Ent. Soc. 1864, p. 30); they were about $\frac{1}{800}$ of an inch in length, found in the unopened buds of the black currant, the blossom of which they destroyed; they were elongate, cylindrical and fleshy, and possessed only four legs. A somewhat similar form found in galls was some years ago described in France; and the Rev. M. J. Berkeley had recently called Prof. Westwood's attention to a third form which attacks pear trees, and makes small patches or pustules on the leaves. At Oxford he had found many of these blotches, and as many as thirty or forty Acari in a single blotch; in some cases there was a small opening in the leaf, but in the majority there was no visible aperture; perhaps the parent when depositing her eggs makes a small hole which afterwards closes over. Notwithstanding the existence of only two pairs of legs, he thought these were a mature form; and the three species seemed to constitute a distinct four-footed tribe in the family Acaridæ, distinguished likewise by having the whole surface covered with minute tubercles (like the parasite of the human nose) arranged in as many as sixty transverse rows; at any rate they required to be segregated under a separate generic name, and he proposed that of *Acarellus*, the three species being *Acarellus pyri*, *A. ribis-nigri*, and *A. gallarum*.

Mr. Albert Müller suggested that these forms perhaps belonged to the already-named genus *Phytoptus* or *Phytopus*, the species of which inhabit excrescences of various plants, had at one stage of their existence only four legs, and are closely allied to *Simonea folliculorum*. He referred to papers by Frauenfeld in Verh. zool.-botan. Ges. Wien., vol. xv. (1865), and Landois in Zeitsch. f. wiss. Zool., vol. xiv. (1866).

Papers read.

The following papers were read:—

“Further Observations on the Relation between the Colour and the Edibility of Lepidoptera and their Larvæ”; by Mr. J. Jenner Weir.

“List of Species in a Collection of Butterflies sent by Mr. Henry Ansell from Kinsembo, South Western Africa”; by Mr. A. G. Butler.

“Contributions to an Insect-Fauna of the Amazon Valley” (Coleoptera, Cerambycidæ); by Mr. H. W. Bates.

“List of the Hymenoptera collected by Mr. J. K. Lord in Egypt and Arabia; with Descriptions of the New Species”; by Mr. Francis Walker.

New Part of 'Transactions.'

The second Part of the ‘Transactions for the year 1870,’ published in June, was on the Table.—*J. W. D.*

A List of the Birds of Cornwall. By EDWARD HEARLE RODD, Esq.
(Continued from Zool. S. S. 2244).

Wood Sandpiper.—Not uncommon in the autumn, and sometimes in the spring months: seven specimens obtained in one day, in the month of August, 1840, from the Land's End marshes, all of which proved to be birds of the year: smaller than the last-named species, with the legs longer.

[At p. 352 of his 'Spring and Summer in Lapland,' Mr. Wheelwright says of this bird, "Far different are the quiet unobtrusive habits of this little bird during the breeding-season, to the boisterous noisy behaviour of its congener, the green sandpiper. Early in the summer the wood sandpiper has a new pretty little song, which it trills out when seated on a tussock of grass or when rising in the air in the vicinity of the nest. I have much oftener seen this bird seated on a tree or a rail than the green sandpiper, although that bird will occasionally perch."]

[Mr. Harting, at page 178 of his 'Birds of Middlesex,' seems to me to be the first author clearly to distinguish between the wood sandpiper and the green sandpiper, for which it may readily be mistaken. "It is rather smaller, has proportionately a shorter beak and longer tarsus, the legs are lighter in colour, and it has not the white markings under the wings which are so conspicuous in the green sandpiper: a marked difference also exists in the tail-feathers; in the green sandpiper the tail is for the greater part white; the outside feathers on each side with one small dark spot on the outer web near the end; the next feather with two dark spots; the third and fourth with two rather broad dark bands; the fifth and sixth with three or four dark bands; but all the marks are on the distal half of the tail-feathers, leaving the basal half pure white. In the wood sandpiper the tail-feathers are barred with narrow transverse white bars on a ground colour of greenish black. The axillary plume in the green sandpiper is grayish black, with narrow angular white bars; in the wood sandpiper it is white, faintly marked with transverse dusky bars. There is another point in which these birds differ and which appears to have been hitherto overlooked: in the wood sandpiper the shaft of the first quill-feather is white, the remaining shafts dusky, whereas in the green sandpiper the shafts of all the quill-feathers are dusky."]

Common Sandpiper.—Summer visitant: seen generally in pairs on the margins of fresh-water ponds. Trengwainton, Madron; Trevethow, Lelant; &c.

Greenshank.—Not uncommonly met with in the same localities as the redshank. This bird shows the connecting link between the sandpiper and the godwits, in the form of the beak, which turns a little upwards.

Avocet.—Very rare as a Cornish bird: one obtained from the Land's End, apparently a bird of the year, in September, 1847.

Blacktailed Godwit.—Uncommon: seen at Trengwainton ponds, and killed at the Land's End.

(I have received a specimen of this godwit from Scilly to-day. There is nothing at all remarkable in its plumage for brightness of colour on the throat, breast and belly, like its common congener the bartailed godwit, which I have always observed carries a fine unsullied bay-colour on its under parts at this season of the year; but in the blacktailed godwit there is nothing beyond a dull dirty reddish brown, which is confined to the breast only.—*April 30, 1870.*)

[Mr. Dresser has just mentioned to me a distinctive character between our two godwits, pointed out to him by Mr. Blyth: the blacktailed has the claw of the middle toe serrated, the bartailed plain.—*Edward Newman.*]

Bartailed Godwit.—Generally to be met with in the autumnal months on flat sands and estuaries, and along the shores of our harbours and creeks, but the species affects some localities, whilst others equally favourable are deserted. In summer the breast of this species is bright bay, in winter white; the breast of the bird of the year, until the next summer, buff-coloured. (See note on the "Knot.")

Ruff.—Occasionally met with in the autumnal months, in the marshes in the Land's End district.

Woodcock.—Winter visitor: universally distributed in suitable localities. Their first appearance takes place about the second week in October, and the first flights usually take place with the wind at any point to the east from the south: the birds are usually first found in the open heathery ground at and adjacent to hills.

[The Rev. W. T. Bree, at p. 147 of the third volume of 'Loudon's Magazine of Natural History,' points out a distinguishing mark between the sexes of the woodcock: he says, "the front or outer edge of the first quill-feather of the cock bird is marked alternately with dark and light spots of a somewhat triangular shape, while in the hen the corresponding feather is without spots, and in lieu of them presents a uniform light-coloured stripe extending the whole length of

the feather." This distinction is not generally known, or rather is not generally admitted. Mr. Harting quotes the paragraph without comment. I shall be very glad to learn the opinion of ornithologists on this subject.]

Great Snipe.—Very rare generally in the western counties. A specimen from the parish of Towednack, and another from St. Levan; another shot at Crowdymarsh, near Camelford. Met with more frequently in Norfolk and the eastern counties. Number of tail-feathers, sixteen.

Common Snipe.—Universally distributed in suitable localities: a brown variety, with the dorsal stripes narrower, occasionally met with. Nest and eggs found at Tremethick marsh, Madron. Number of tail-feathers, fourteen.

Jack Snipe.—As universally distributed as the last-named species: no instance recorded of its remaining throughout the summer. Number of tail-feathers, twelve.

[This is the *becassin sourde* or *deaf snipe* of Temminck; whence comes this name? from its lying so close? A number of instances have been recorded of the jack snipe breeding in this country, one of which, from my expressing disbelief, involved me in a literary controversy in the 'Field,' in which, as regards argument, I got sadly worsted, I cannot say convinced; if I recollect right this controverted nest contained eleven eggs! Temminck tells us it breeds commonly about St. Petersburg, but assigns it, as I should have expected, only four eggs.—*E. Newman.*]

Sabine's Snipe.—This *variety* of the common snipe, as it is now supposed to be, was killed near Carnanton, in the neighbourhood of St. Columb, in January, 1862, in a very fine state of plumage:—it, in every respect as to colour, dimensions, and arrangement of markings, answers the description of authors of this bird: there is an entire absence of the longitudinal stripes in the back, with the uniform brown freckled plumage from the chin to the vent: the facial mask, from the corner of the mouth to the eyes and so all round under the throat, is dull black; a black stripe half an inch wide runs from the top of the head to the nape of the neck, with a few rusty brown spots sparingly distributed; the under-surface of the quill—secondary and tertial feathers—blackish gray, as are also the lateral under scapularies; the whole upper plumage marbled with deep black and rust, uniform throughout—the tail with alternate black and rusty bars. Number of tail-feathers, in this specimen, *fourteen*—corresponding in this

character with *S. gallinago*. Mr. Gould, when on a visit to me, examined the specimen and tested the above description; his opinion is that its specific distinction from the common snipe cannot be supported.

Brown Snipe.—Very rare as a British bird, five or six examples only having occurred: one reputed to have been killed in Devon. Very common on the shores of America. The first and only example of this rare species in Cornwall (a bird of the year) occurred at Scilly on the 3rd of October, 1857: it was observed by A. Pechell, Esq., by the fresh-water pond, Higher moors, St. Mary's; he had no opportunity of hearing its note: it was standing a little in the water, and probing with its bill like the godwit.

Curlew Sandpiper.—Common in the autumnal months along our flat beaches, associated with dunlins, ring plovers, &c.; breast in summer bright red, in winter white; sometimes killed in the intermediate state; distinguished from the dunlin, in winter plumage, by the upper tail-coverts being always white.

Knot.—A few observed on most of our flat beaches in the autumnal season, generally birds of the year: in summer plumage the breast is bright red, in winter white, and the feathers on the back with a greater mixture of black: specimens obtained in winter, summer, and in the intermediate states of plumage. Marazion sands. Birds which in winter have the breast white, and in summer the same part red, exhibit an intermediate or buff-colour on this part when in their first or immature plumage of the year.

Buffbreasted Sandpiper.—Very rare: two examples only recorded of its capture in Cornwall; one occurred in the month of September, 1846, when it was seen and shot on the flat sands between Penzance and Marazion; the other specimen, in a similar state of plumage, was killed in the latter part of September, 1860, at the pool near Chûn Castle, Morvah (See 'Zoologist,' 1860), by W. H. Vingoe.

Little Stint.—Occasionally seen, and specimens obtained from salt marshes near the sea. Marazion marsh and Hayle estuary.

Temminck's Stint.—Found occasionally in the same localities as the last-named species, but not so frequently. The tarsus of this bird is considerably shorter than in *T. minuta*, which is its principal characteristic distinction.

[The most essential difference between these two species may perhaps be best shown as follows:—*Temminck's Stint*. Colour, more uniform. Tarsus, light brown, short and slender. Wings, first quill-

feathers with white shaft, all the other quill-feathers with dusky shafts. Tertiary feathers reach to very near the end of the primaries. Tail, three outer feathers on each side almost white; the first outside white with a faint dusky spot on the outer web; the second white, with a narrow dusky streak on outer web. *Little Stint*. Colour, more varied. Tarsus, black, longer and stouter. Wings, all the quill-feathers with white shafts. Tertiary feathers do not reach within a quarter of an inch of end of primaries. Tail, three outer feathers on each side all pale gray; no white."—*Harting*, p. 199. The difference in the colour of the shafts of the quill-feathers was first pointed out by Mr. Wheelwright.]

[At p. 349 of his 'Spring and Summer in Lapland,' Mr. Wheelwright describes the nest and eggs of Temminck's stint:—"The nest was placed on a tussock of rushy grass in a swampy part of the meadow and consisted of nothing more than a few bits of dry grass. The eggs were four in number and very pyriform; their colour chocolate-brown, covered with a deeper shade of small fine spots all over."]

American Stint.—An example killed in Marazion marsh, October 10th, 1854. This is the first recorded British specimen (See Zool. 1854). This rare example was killed by Mr. W. H. Vingoe.

[Mr. Rodd has asked me to communicate some particulars with reference to the American stint referred to by him in the 'Zoologist' for December (S. S. 1920), which was shot by me on the 22nd of September last, and I have much pleasure in complying with his request. I observed the bird on several successive mornings before I obtained it on a salt-marsh lying between Northam Burrows and the estuary of the rivers Taw and Torridge, and on every occasion it was alone. It seemed very active and restless, and was rather difficult of approach. When it rose it always repeated a short hurried note, similar to that of the two other species, though perhaps rather shriller and more frequently reiterated (differing in this particular from Mr. Vingoe's specimen, which was silent when it rose). Its flight was strong and rapid for so small a bird, and struck me as being something like that of the common sandpiper, which bird indeed (except with regard to the vibratory motion of the body peculiar to that species) it somewhat resembled in its movements when on the ground. It always flew away across the water out of sight and at a great height, but it invariably returned to the same spot where I had first observed it. I had no difficulty in identifying the bird as distinct from either of the two British species of stint, and a careful comparison of it with the description of Mr. Vingoe's specimen of the American stint in

Newman's edition of Montagu's Dictionary, led me to think that it would prove to be a second British specimen of that species—a supposition the accuracy of which was kindly tested and established by Mr. Rodd and Mr. Vingoe, to whom I sent it for inspection. The specimen is now in my possession. It is a male bird, and as far as I can judge, in full plumage, which is of a very much darker shade throughout than that of *Tringa minuta*. The measurements and description generally correspond pretty nearly with those of Mr. Vingoe's specimen, as given in Newman's Dictionary, though the differences between the species in question and the two British species appear perhaps to be a little more pronounced in my specimen than in his. One point alone of actual dissimilarity may be noticed, and this may be very likely owing to a diversity of age or sex. In his specimen the legs were grayish yellow; in mine they are greenish gray, strongly inclining to the former tint. I think the occurrence of the bird may most probably be attributed to the prevalence of south-westerly gales, of which we had had a succession for many days previously.—*Marcus S. C. Rickards; Clifton, December 10, 1869.*]

[Two distinct species go by the name of American stint, *Tringa Wilsonii* and *Ereunetes petrificatus*, will Mr. Rickards kindly say to which of these his specimen belongs.—*Edward Newman.*]

Schinz's Sandpiper.—Two specimens killed on Hayle estuary, in October, 1846, by Mr. Vingoe. This is an extremely rare British bird, and Mr. Yarrell refers to one only having been killed, and that in Shropshire. It is very nearly allied to the dunlin, but its white rump and shorter bill, and also the absence of the black patch on the breast in summer, are distinguishing characters. (See 'Zoologist,' 1846, p. 1554).

Pectoral Sandpiper.—Scilly. I quote the words of Mr. Yarrell in reference to the capture of this interesting species in Cornwall:—"Mr. D. W. Mitchell, of Penzance, sent me in June, 1840, a coloured drawing of the natural size, and a fully detailed description with measurements, of a sandpiper, shot by himself on the 27th of the previous month, while the bird was resting on some sea-weed within a few yards of the water on the rocky shore of Annet, one of the uninhabited islands of Scilly. On the following day another example was seen, but became so wild after an unsuccessful shot that it took off to another island and escaped altogether. The close accordance of the specimen obtained with the description of *Tringa pectoralis* in summer plumage in the fourth part of M. Temminck's 'Manual,' led Mr.

Mitchell to a true conclusion as to the species and its novelty and interest in this country.”

Dunlin.—Generally distributed on all our flat beaches throughout the year, but more especially in the winter months: observed occasionally in the summer, on Bodmin moor, near Trewortha marsh. Distinguished from the curlew tringa by the brown and rufous feathers extending all the way over the back and upper coverts of the tail, which in the other species are white.

Purple Sandpiper.—Not unfrequently seen on the rocks extending into the sea, both in the spring and winter. Battery rocks, Wherry rocks, and Long rock, Mount's Bay. The figure in Bewick's work on 'British Birds,' under the word "Knot" is referable to this species in winter plumage.

Land Rail.—Locally distributed over the east and west of Cornwall; common in the spring and summer in the grass-land about Penzance: nest and eggs frequently found.

Spotted Crake.—Occasional winter visitant, and sometimes in considerable numbers: specimens have been obtained from this neighbourhood, but its occurrence is rare.

Little Crake.—This is a rare British bird, and although no recorded Cornish example exists, Mr. Drew, naturalist, late of Plymouth, had a specimen which he said he received from the neighbourhood. The next species has been captured in Cornwall, and it is probable that the present species also exists.

Baillon's Crake.—A rare British species: one specimen obtained from the basin of Penzance pier, and another from Zennor.

Moorhen.—The remarks on the water rail apply also to this species.

Water Rail.—Generally met with in suitable localities, viz., sedgy morasses, overgrown wet ditches, &c.

Coot.—Not unfrequently met with in some localities, but not so numerous as the two last-named.

Gray Phalarope.—Occasional visitant, and often in large numbers, in the autumnal and winter months, but at uncertain intervals.

Rednecked Phalarope.—Found principally in the Northern Islands. Helford; Scilly.

NATATORES.

Graylag Goose.—A specimen was shot in Marazion marsh in the early part of March, 1862: this is the first Cornish example that has come under my notice: it has a slight border of white at the base of

the bill, but it cannot be confounded with *A. albifrons*. The appearance of this, as well as many other northern birds, in southern latitudes, depends so much upon the severity of our winters, that their occurrence at suitable periods ought not to be looked upon as improbable.

Bean Goose.—This is our common wild goose observed in severe winters in large flocks: unless there is a strong frost, and of some continuance, in the north, they are seldom seen in the southern and western counties.

Whitefronted Goose.—Not unfrequently obtained at the Land's End in the winter months.

Bernicle Goose.—Sometimes obtained from the Land's End marshes, and it has been observed in Mount's Bay.

Brent Goose.—Occasional visitant, and in considerable flocks in hard winters: during severe frost they appear to be oceanic in their habits, frequenting Mount's Bay at a distance of from half-a-mile to a mile from the land.

Spurwinged Goose.—The only recorded British specimen was killed near St. Germans, in June, 1821, and, in a mutilated state, was given by Mr. Henry Mewburn, of that place, to the late Mr. Bewick, whose figure, in his 'British Birds,' was taken from this individual,—a most valuable acquisition to the Cornish Fauna.

Hooper or Wild Swan.—The hooper is generally observed in the western counties after a long continuance of hard frost, and the bird is then observed in some numbers in harbours, &c.

Bewick's Swan.—This species was so long confounded with the former, as a small variety, that I have ventured to record it as Cornish: the distinctive characters of the two birds are beautifully illustrated in a series of anatomical engravings by Mr. Yarrell, in his third vol. of 'British Birds.'

Mute Swan.—Only known as domesticated.

[This bird being identified with Orpheus, and called also the bird of Apollo, the god of music, powers of song have often been attributed to it and as often denied: it is, however, perfectly true that it has a soft low voice, rather plaintive, and with little variety, but not disagreeable. I have heard it often in the spring, and sometimes later in the season, when moving slowly about with its young. Col. Hawker, in his 'Instructions to young Sportsmen,' says, "The only note which I ever heard the wild swan utter in winter is his well-known hoop, but one summer evening I was amused with watching and listening to a

domesticated one as he swam up and down the water in the Regent's Park. He tuned up a sort of melody made of two notes, C and the minor E flat, and kept working his head, as if delighted with his own performance." Professor Auguste Bertini has taken down the melody, and Mr. Harting has republished it at p. 222 of his 'Birds of Middlesex.')

Common Shieldrake.—Not uncommon in severe winters; specimens on several occasions obtained from the ponds at Sennen.

Shoveler.—Not uncommon in severe winters at the Sennen ponds.

Wild Duck.—Universally distributed in suitable localities, especially in hard winters, when immense numbers resort to the pools and marshes near the Land's End, being the most extreme point of refuge westward, in pursuing a course to avoid the rigours of intense cold.

Gadwall.—Rare: one specimen, and the only one recorded from this neighbourhood, killed on Trengwainton ponds.

Pintail Duck.—Common in the Land's End district in severe weather.

Garganey.—A rare visitor in Cornwall; a few summers since several were obtained in the neighbourhood of Penzance in very beautiful plumage, and preserved.

(The garganeys visit us sometimes, but rarely, in the early spring, on their journey to the eastern counties, where they breed. Three specimens, in adult and beautiful plumage, were obtained on the 30th of March, and sent for preservation by Mr. J. Symons, jun., from the Land's End.—April 9, 1870.)

Teal.—The most regular of our duck visitors every winter, appearing sometimes early in the autumn, and at times in large numbers in the marsh pools at the Land's End.

Wigeon.—A regular visitor to the Land's End district every winter, but not so generally distributed as the last-named species.

Eider Duck.—One specimen killed on the river Looe: rarely seen in southern latitudes.

Velvet Scoter.—Sometimes seen in Mount's Bay, and one shot at Penzance quay.

Scoter.—Rare: occasionally seen in Mount's Bay and captured. All the scoters are oceanic in their habits, and are more frequently seen at sea than inland.

Surf Scoter.—A rare bird in England, and only occasionally seen in the north of Scotland. A specimen of this duck in adult plumage was picked up in a dying state on the beach at St. Mary's, Scilly, on

the 22nd of September: the autumnal moult was completed and the plumage yet black; the white on the top and back of the head pure white; the colour of the anterior portion of the bill Seville-orange-yellow; nail, grayish yellow; legs, tile-red; membranes, black. A specimen in a mutilated state said to have been found near Pendennis castle in 1852.

Pochard.—Not uncommon in the winter months after frost in the Land's End district.

Scaup Duck.—Rare in the western districts, a few occurring in severe weather: the female has a broad white patch at the base of the bill.

Tufted Duck.—Found in the Land's End district in all winters with more or less frost.

Longtailed Duck.—Very rarely found in the southern counties of England: a female killed on Marazion marsh a few years since, and now preserved in a private museum; also a specimen from Tre-gothnan.

Goldeneye.—Not an uncommon species in hard winters in the Land's End district.

(It may be observed that the goldeneyes that appear in the far west after and during severe weather are in the proportion of forty out of fifty in the female plumage, or perhaps in the female plumage of the first year of each sex. I observed one this week in perfectly adult plumage.—*February 9, 1870*).

Smew.—Rare: a few instances of its occurrence on record. A specimen obtained from the ponds at Pendarves, and one, either a female or male in immature plumage, from the neighbourhood of Penzance.

Redbreasted Merganser.—Generally a winter visitor, and during severe weather not a very uncommon bird.

(I saw a full-plumaged merganser which was killed in the middle of the late winter in this neighbourhood: all the specimens I have hitherto seen here—and they have occurred in the winter months—have been in the sombre garb of the dun diver figures. I have regarded this state of plumage as seasonal, as well as indicative of birds of the year; but the adult ornamental plumage of the specimen under notice induces me to suggest that if generally the less ornamental livery is the winter dress, very old birds may retain the full plumage perennially.—*April 9, 1870*.)

Goosander.—Sometimes observed in Mount's Bay, but only in

winter plumage : the adult male has the breast of a beautiful glowing maroon buff-colour. Perran-uthnoe.

Great Crested Grebe.—Not uncommon in winter on marshes in the Land's End district : it is rarely met with in the southern and western counties in its tufted plumage.

Rednecked Grebe.—Quite as often occurring as the last-named species, frequenting the same localities ; sometimes killed towards the spring, when some of the red feathers on the neck appear, characteristic of its nuptial livery. Base of the bill in this species yellow.

Sclavonian Grebe.—Specimens not in adult plumage occasionally obtained from the Land's End district, but less numerous than the two last-named species.

(Several specimens of the horned grebe (*Podiceps cornutus*) came to hand during the late hard winter, from different localities in West Cornwall. All the specimens that I saw were without elongated feathers or fringes, and were, I presume, either in the first year or in winter plumage.—April 9, 1870.)

Eared Grebe.—Specimens not unfrequently obtained from the neighbourhood of Penzance, but generally in immature plumage : a specimen in adult summer plumage obtained some years since from St. Just pool, Falmouth harbour, and now in the Truro Museum ; another from Helford river, now in my collection.

Little Grebe.—The most commonly distributed of all the grebes in the Land's End district. In summer plumage the neck is dark red, with the chin black, and as such it has been described as a distinct species, under the name of the "black-chinned grebe : " in this state it has been obtained from Trengwainton ponds, Madron ; it is usually known by the name of "dabchick."

Great Northern Diver.—Found more or less abundantly every year in Mount's Bay, generally in immature plumage, and in the autumnal months ; though of late years some specimens in the adult state have been killed. It is now supposed that the full-spotted plumage of this bird, and of the other two species, is not only indicative of maturity, but also of the adult summer state, which gives way at the autumnal moult to the "Imber" plumage. It is a question whether in very old birds the full-speckled plumage is not retained perennially : occasionally specimens are seen on the Cornish coast in the winter months in the full plumage of summer, and it has been attributed to accident or disease, but I rather think that this will generally prove to be the exception with very old birds. See articles in the 'Zoologist' on the plumage of this bird.

Blackthroated Diver.—More rare than the former species, but sometimes seen in Mount's Bay.

Redthroated Diver.—Common in the autumnal and winter months in Mount's Bay, and at this season invariably found without the red throat, and in the plumage represented by Bewick as the "speckled diver," which is supposed to be this bird after the autumnal moult.

Common Guillemot.—Frequently seen singly, and in small parties, in Mount's Bay, and around our coast. This bird, which is about the size of a bantam fowl, lays its single egg, which is quite as large as that of a turkey, and scarcely two are found alike,—some being green, white, and of the intermediate tints,—some immaculate, and others more or less spotted.

Ringed Guillemot.—The specific distinction of this bird from the common guillemot is doubted.

Black Guillemot.—Rare on the western coasts of Cornwall: one example, in intermediate plumage, taken some years since in Mount's Bay.

Little Auk.—Not unfrequently met with in Mount's Bay in some seasons: other instances of its capture in the county are recorded, although regarded as a rare bird.

Puffin.—Occasionally observed on the Land's End cliffs, but the precipitous rocks on some of the islands at Scilly appear to be its favourite haunts, where it annually breeds; egg dirty white.

Razorbill.—A common species, sometimes appearing in small parties in Mount's Bay, and all round our coast, especially at Scilly.

Cormorant.—Generally distributed throughout the western coast of Cornwall, sometimes observed inland. Number of tail-feathers, fourteen; this, together with a white patch over the thigh, and on the throat, distinguishes it in summer from the common shag.

Shag.—More numerous as a species than the last-named, and more frequently observed in creeks and arms of the sea. Number of tail-feathers, twelve. A reverted occipital crest distinguishes it in summer plumage.

Gannet.—Not unfrequently observed, and sometimes in small companies, in Mount's Bay and on the north coast. The young of the year is remarkable for a plumage wholly unlike that of the adult bird, being smoke-gray, studded all over with minute white specks. Not known to breed on the Cornish coast, or at Scilly.

EDWARD HEARLE RODD.

(To be continued.)

Natural History of Wicklow and Kerry.

By A. B. BROOKE, Esq.

THE following are a few rough notes on the natural history of Wicklow and Kerry, taken this year during the months of March, April and May, and may be interesting to some of your readers. I am very sorry my time at Dingle, in Kerry, was so limited, otherwise I would have tried to give a fuller list of the sea birds breeding in that interesting locality, but I hope to be able to do so at some future time.

Otters.—Are still common in these counties. Frequently coming on their tracks about Lough Broad, a large brackish lake on the east coast of Wicklow, separated from the sea by a low shingly beach; and being anxious to secure one or two specimens for my collection, I examined its shores very carefully. On the top of a grassy bank in a lonely corner of the lake, surrounded by deep, wide dykes, full of trout and eels, I came upon a place that was evidently the favourite haunt of an otter. Three broad well-beaten runs led to his bed in the middle of the bank, upon which spot he used to lie coiled up in the sun all day long, and from which he could, on the slightest approach of danger, glide into one of the surrounding dykes, the banks of which, being all grown over with long rushy grass and brambles, formed a secure retreat: this he had without doubt just done, the grass being pressed down and the bed dry and warm. Setting a strong steel trap carefully where the runs met, I attached it to a cord long enough to allow him to get into the water, which, if possible, is the first thing an otter does when he finds himself caught. Early the next morning on visiting the trap, I saw under the bank a long black line, and on getting closer made out the wild, wicked-looking face of an immense otter. The moment our eyes met, he dived without a sound. I then saw he was caught by the hind leg, and being afraid he might not be securely held, and seeing his great size and strength, I was very careful, and was obliged to play him like a fish for more than ten minutes before I could get him on the bank. He turned out a magnificent dog otter, and his dimensions, most carefully taken, were as follows:—

Length of head and body	- - - - -	30½ inches.
„ tail	- - - - -	19½ „
Girth of neck	- - - - -	15½ „
„ behind fore-legs	- - - - -	18 „

Weight 22 lbs.

I am inclined to think that the weights and measurements of otters are frequently much exaggerated. Both my brother and I have for many years been greatly interested in these animals, and numerous specimens have passed through our hands: none of these equalled the size of this otter; the largest that came under the notice of the late Mr. Thompson, of Belfast, during his long observations on the Zoology of Ireland, being also inferior to him in dimensions. A female weighing $16\frac{1}{4}$ lbs. was caught a few days afterwards: she had two young ones inside her, male and female, about the size of mice. This was on the 13th of May; two other old females caught the same month had no sign of young in them.

Badgers.—Still hold their ground, and are found sparingly through both these counties.

Marten Cat.—Though nearly extinct in the north of Ireland, still common in some of the southern counties, especially in Kerry. A female caught by myself on the 31st of March, in Wicklow, weighed 2 lbs. 12 oz., and measured twenty-eight inches from nose to tip of tail; she had three young ones inside her, the period of gestation being about half completed. As far as I am aware there is only the one instance mentioned by Thompson, vol. iv. page 9, of the *Mustela foina* being found in Ireland, the yellow-breasted variety (*M. Abietum*) being almost invariably found. Mr. Glennon, of Wicklow Street, Dublin, tells me that out of thirteen martens received by him this year, not one had the white breast.

Gray Seal (*Halichærus gryphus*).—The north side of Dingle Bay, and the Blasket Islands, off the coast of Kerry, are great haunts of this species, which seems in that locality entirely to take the place of *Phoca vitulina*, of which latter species I did not detect a single specimen during my stay at Dingle. When the weather is at all rough, Ventry Bay, from its being beautifully sheltered and at the same time a good fishing-ground, is much resorted to by these animals. On a calm evening I have seen as many as four and five in the bay at one time. The first evening I went out I was fortunate enough to shoot a very fine old male: he was killed instantaneously, and sank on the spot, but was washed up by the tide that night and brought to me the following day, much to my satisfaction. He weighed 322 lbs., and measured seven feet ten inches from the point of his nose to the end of his flippers, four feet seven inches being his greatest girth. His coat was of a shining and intense black, with the exception of a few gray spots on his shoulders, and the back of his head, which was

a grizzly gray. I saw many afterwards, but was unable to secure another specimen: none of these varied from the usual yellowish gray colour of this species.

Golden Eagle.—Used to breed regularly on Brandon, in Kerry, but now very scarce. I saw, however, a young female which was caught in a rabbit trap, baited for a fox, last winter, by Lord Ventry's gamekeeper.

Sea Eagle.—A pair breed regularly every year on one of the Blasket Islands.

Peregrine Falcon.—A pair of these noble birds are, I am happy to say, found breeding in all suitable localities round the coast of Kerry, owing, no doubt, greatly to the interest Lord Ventry takes in our native birds, prohibiting their destruction on his property.

Goshawk.—In Ballymanas Wood, in Wicklow, I saw a young male: he flew up the wood towards me, alighting on a bare branch of an oak tree about thirty yards off. The longitudinal markings and rufous edgings to his feathers characteristic of immaturity were strongly defined. The only authenticated instance of the occurrence of this species in Ireland during this century, that I am aware of, was recorded by my brother in 'Land and Water,' March 5th, 1870. She was a splendid old female, weighing three pounds seven ounces, and was shot during last winter on the Galtee mountains, Tipperary. It is a remarkable fact that in old hawking days Irish goshawks were famous, and are to be found mentioned in some of the oldest works upon falconry; for example, at page 5 in 'Libro de cetreria,' by Don Fadrique de Cuniga, y Lotoma, published in Salamanca in 1565, and also in the 'Book of Falconry or Hawking,' by George Turkevill, published in London, 1611, page 60. Both of these works were the greatest authorities of their time, and the Irish goshawks are mentioned as being most highly prized.

Hen Harrier.—Common in parts of Kerry, having, if anything, increased of late years.

Marsh Harrier.—Saw a pair hunting over Lough Broad, in Wicklow. Very probably were breeding there, as I saw them repeatedly.

Raven.—Used to be very common, but have all been poisoned lately on account of the damage they did, destroying young lambs, &c. I only saw one bird on the Blasket Islands.

Hooded Crow.—Extremely common.

Chough.—Found in pairs round the coast of Kerry.

Chiffchaff.—First heard in Wicklow, April 2nd.

Swallow.—First seen in Wicklow, April 9th.

Sand Martin.—First seen in Wicklow, April 10th.

Willow Wren.—First heard in Wicklow, April 11th.

Sedge Warbler.—First heard in Wicklow, April 24th.

Common Swift.—First seen in Wicklow, April 29th.

Corncrake.—First heard at Killarney, May 1st.

Bean Goose.—A flock of about fifty of these birds winter every year on Lough Broad. They allow the train to pass within seventy yards of them without even looking up. I did not see them after the 9th of April.

Shoveler.—Saw a pair, male and female, on the lower lake at Killarney on the 21st of May.

Garganey Teal.—To my great delight I detected a pair of these rare visitors to Ireland on Lough Broad, County Wicklow. I watched them closely for three days before I succeeded in getting the drake, but very stupidly missed the duck. They were in company with a small flock of common teal, but never seemed to be thoroughly at home with them, always keeping a little apart, and when put up separated at once. Their note was a low croak. The drake was a beautiful bird in full adult plumage: he weighed 1 lb. 3 oz. Length fifteen inches and a half.

Tufted Duck.—Shot a drake at Killarney on the 4th of May: he had been wounded in one wing during the winter, which would account for his late appearance. Weight 1 lb. 10 oz.

Heron.—A few breed in the cliffs, in company with shags and herring gulls, in one or two places to the west of Dingle. The young birds were fully fledged, and standing up on their nests on the 3rd of June.

Great Northern Diver.—I shot a pair of these magnificent birds in full adult plumage, on the 5th of May, on the lower lake at Killarney. Although it is well known that these birds sometimes remain very late in this country, before leaving for breeding, it is remarkable this pair being on *fresh* water at this time of the year. Mr. Ward, of Wigmore Street, by whom they were examined, informs me that the eggs in the female were much developed. They weighed respectively twelve pounds and a half and ten pounds and a half. I afterwards saw three more in Ventry Bay on the 11th of June.

Cormorant.—Very common round the coast.

Shag.—As common as the above species. They breed in colonies,

high up in the cliffs. The young were hatched, and some of them nearly as large as the old birds on the 3rd of June.

Gannet.—Breeds on the Skellig rocks, south of Dingle Bay.

Common Guillemot.—Breeds on Teraght Island, the most westerly of the Blaskets, a precipitous barren-looking rock, rising seven hundred or eight hundred feet out of the sea. Weight of a female 2lbs.

Ringed Guillemot.—I saw three of this species sitting on the cliffs of Teraght, among the common guillemots.

Black Guillemot.—Saw an odd pair round the coast, but did not discover their breeding-place.

Razorbill.—Breeds in countless numbers on Teraght. Weight of a female 1 lb. 4½ oz.: stomach full of small sand-eels.

Puffin.—If anything more numerous than the razorbills.

Arctic Tern.—Common, breeding on some of the smaller rocks in Basket Sound.

Glaucous Gull.—A fine adult specimen was shot about twelve years ago, in a corn-field near Tralee Bay.

Iceland Gull.—A specimen of this rare gull was shot by Captain De Moleyns, at Ventry Bay, in the winter of 1868; another was seen at the same time, but he was unable to secure it. The specimen killed, an immature bird, was most kindly given to me.

Herring Gull.—Very common, breeding in suitable localities all round the north coast of Dingle Bay.

Kittiwake.—Breeds in great numbers on Teraght.

Greater and Lesser Blackbacked Gulls.—Both breed on some of the Basket Islands.

Storm Petrel.—Breeds in numbers on Innismickillan, the south Blasket. I caught eight specimens on their nests, but only secured two eggs, as I was rather too early in the season.

A. B. BROOKE.

Colebrook Park, Brookeboro', Fermanagh, Ireland.

August 3, 1870.

Ornithological Notes from North Lincolnshire.

By JOHN CORDEAUX, Esq.

(Continued from S. S. 2081.)

JUNE AND JULY, 1870.

Nightingale.—June 2. At ten o'clock this evening, when walking home through the Bradley Woods, about three miles from this place,

I heard the nightingale singing. Although this exquisite songstress occasionally visits the north-western corner of the county, this is the first occasion I have had the pleasure of hearing it in this neighbourhood. The dry and hot spring may have induced them to extend their range into the bleak north-east corner of Lincolnshire. I am informed on good authority that nightingales have also nightly been heard during the present spring in the Irby-dales woods, also in this district.

Ruff and Reeves.—June 10. Almost daily lately, when crossing the marshes, I have seen a flock of eight birds fly rapidly past, and although I felt convinced they were a party of reeves, could never get near enough to be certain as to their identity; clearly they were neither golden plover nor dotterel; one was larger and darker than the others, and not unlike, when on the wing, a golden plover in summer dress. To-day I found them feeding in our largest marsh pasture, and by riding quietly round the flock, beginning at some distance and gradually contracting the circle, I got near enough to find they were what I suspected, a ruff and seven reeves, the former in the beautiful nuptial attire. In the afternoon I had the pleasure of again watching them, but this time through my telescope. Compared with either golden plover or dotterel, they are restless unquiet feeders, and are frequently shifting their ground, taking little flights of twenty or thirty yards. Considering the length of the tarsi they are by no means high standing birds, and look less elevated even than the golden plover. The body is carried horizontally, the tibio-tarsal joints being much bent; the head, if anything, inclined downwards. They run rapidly, now and then stopping to pick up some small substance, probably an insect, from the grass, and are often crossing and recrossing each other's tracks, not feeding, like the knot, all in the same direction. The ruff appears both proud and jealous of his seven wives, following them up closely; and occasionally, when he thinks they are getting too far away, he takes a short flight towards them. He is most watchful, and ever on the alert, on the slightest appearance of danger invariably takes the initiative, stretching himself to the full extent, and is then a conspicuous and beautiful object, looking nearly twice his natural size. If the alarm is well grounded, he at once rises, his reeves rising with him, and they go off together at a great pace, silently and in close order, skimming the ground, and sometimes will simultaneously shoot upwards to a higher elevation, and as rapidly, when about to alight, descend. This ruff was a dark-plumaged variety, showing a considerable

amount of deep chestnut and purple. I did not see them any more after this day: they were, however, seen, I understand, in our marshes up to the middle of June.

Wild Duck.—Several have bred in the marsh this season; two broods on my own farm were flyers early in June. In the adjoining marshes a pair nested on the top of a bean-stack, and in 1869 (probably the same birds) on a straw stack.

Brownheaded Gull.—July 1st. We have now some large gatherings of these gulls in the Humber marshes, and with more young immature birds than is usual. The increase of this species in North Lincolnshire during the last ten years is due to the care taken not to disturb them unduly at their breeding haunts. This is the common gull of the river, except in the winter season, when their place is in a great measure occupied by the common and herring gulls. As far as I am aware the only objection hitherto raised to the well-timed and humane Sea-bird Preservation Act is grounded on the occasional depredations committed by gulls amongst the young of wild-fowl, game and rabbits. Granted that the larger species (for I cannot for a moment think that this can be laid to the charge of any of the smaller gulls, as the common, brownhead, and kittiwake) do now and then gobble up a young duck or grouse during the breeding-season, any loss to the community on this score is certainly of very little moment compared with the great advantages we derive from their kindly services in clearing our fields from many noxious and destructive slugs and grubs (and even rats and mice), before whose insidious attacks, we, alone, are powerless to contend. Scores of sportsmen, like myself, living on the coast, can testify that the sea-gull is not incompatible with an abundance of game, not even the most vermin-hating of gamekeepers ever dreaming of waging war against him. In how many instances, indeed, would a few game-eating gulls be the greatest possible boon to the farmer.

Snipe.—July 12. First arrivals.

Food of the Sparrow.—July 25. Sparrows feed their young during the spring and summer almost exclusively on insects and their larvæ. I find, however, that as soon as the sweet, milky grain of the wheat is obtainable it is preferred. The stomachs of thirty-five young sparrows taken to-day from nests about my house, give the following result— one part insects to two parts soft grain. The young were of all sizes, from a day old to others sufficiently fledged to fly short distances; some had the stomach filled almost entirely with insects, and others

with grain alone; generally, however, there was an admixture in the above proportion. The grain was not confined to the oldest birds, as the stomachs of two baby-sparrows, from appearances hatched but a few hours, contained nothing but grain. One little bird had its gizzard filled with a large moth, which unfolded was half the size of its body. Where grain was present there was also a proportionate supply of small stones to assist digestion. Those gizzards containing the largest proportion of grain had invariably the most stones. The insect remains were principally those of various Coleoptera and many small caterpillars and grubs.

A Starling roost.—There is a famous roosting-place of the starling in a "spinney" near my house, where thousands resort nightly at this season. This place is also much frequented by flocks of rooks and jackdaws. From the injury done to the trees, attempts have been made in past years to get rid of these various lodgers, by discharging guns at sunset round the plantation, but with only partial success, as, although for a time the birds forsake the place, they invariably reoccupy it each succeeding year. The starling retires early to bed, companies coming in from every quarter by six o'clock, and at seven all the trees, excepting those on the outskirts, are more or less tenanted, but more thickly towards the centre of the plantation. The trees are spruce and larch, averaging eighteen to twenty feet in height, the lower branches trimmed off to six feet from the ground; the upper portion, however, is very thick and close, with the boughs much interlaced, forming a shady retreat, impervious alike to sun and rain. I have stood in the centre of this place on a summer's evening with hundreds of starlings roosting within a few feet of me, and, as long as I remained perfectly quiet, without disturbing them. Most of them are asleep—balls of dark feathers, looking like clusters of fruit as they sit, row above row, on the slender larch boughs, their collected weight often bending the branch to such a degree that it is marvellous how the outsiders manage to hang on, and yet they never seem to slip, or tumble off, but roost on with an utter disregard to position. Nine-tenths of the birds are sleeping, old and young mixed indiscriminately; now and then I see one, more restless or suspicious than his fellows, with neck outstretched peering downwards, as if not quite satisfied that all is well, but, seeing nothing to be alarmed at, he too settles himself on his perch, tucks his bill away, and soon, may-be, (for why should birds not dream?) his little wits are wandering in bird dream-land. The starlings occupy the central portion of these trees; above

them sit the rooks and jackdaws. These now stand out wonderfully distinct, single or in dark groups against the clear opal sky, now flushed with the last faint glow of departing day. Some are sleeping, others sit all in a lump, their head half-buried between the shoulders. It is a scene of the most perfect rest and contentment. I feel very much like a burglar in the midst of a sleeping household as I bring my gun up, not to destroy, but to alarm; I can touch the unconscious starlings right and left with the muzzle. The effects of the discharge is perfectly astounding,—I can only compare the row to the bursting of some large reservoir; it is the roar and rush of a mighty torrent. The dust and smell are overpowering, as the birds in their fright dislodge the dried whitewash with which every branch and twig is coated, floating downwards in a dense cloud of white pungent powder, mixed with feathers, till I am nearly suffocated by the mingled heat and stench. The plantation becomes very much what I should imagine the hold of a guano-ship would be in a gale of wind. Ten minutes after the shot the hubbub has ceased, and the starlings once more settled on their roosts, the rooks and jackdaws returning a few minutes later. On a second shot the latter to a bird leave the cover and do not return again, retiring to a neighbouring wood. The starlings merely rise above the trees and settle again; no amount of firing would now dislodge them. As I leave the plantation at a little past nine, another flight of rooks is arriving, but these are from the Yorkshire side of the Humber: every morning they cross the river (here seven miles in width) into Holderness, retiring to roost in Lincolnshire. They are always one to two hours later in getting to roost than our local birds: to night they appear to drop from the clouds, as in a long straggling body they dash downwards. There is no noisy clamour, hardly indeed a single suppressed 'caw,' as each at once takes his place, not leaving it again, and in a few minutes every black lodger has tucked himself up and is asleep.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,
August 2, 1870.

Extracts from a Memoir intituled 'A Monograph of the Alcide.'

By ELLIOTT COUES, A.M., M.D.

(Continued from S. S. 2253).

Genus SYNTHLIBORHAMPHUS, *Brandt.*

Size moderate or rather small; general form stout, compact; head with or without a crest; bill somewhat as in *Brachyrhamphus*, but

much stouter, and shorter for its depth; much compressed throughout, depth at base about half the length of culmen; culmen and gonyes moderately curved; gonyes straight, ascending; nasal fossæ small and shallow; nostrils subbasal, broadly oval or nearly circular, as in *Mergulus*, feathered; feathers extending to about the same distance on culmen and keel; on both mandibles retreating rapidly backwards from the point of their furthest extension; those on the upper passing just by the nostrils, but not covering the latter. Wings of usual size and shape in this group; secondaries very short, as in *Brachyrhamphus*, the tip of the longest not reaching much more than half-way from the carpal joint to the end of the first primary in the closed wing. Tail of usual length, short, broad, nearly square, or very slightly rounded, the feathers very broadly rounded at tip. Tarsi much compressed, anteriorly and laterally transversely scutellate, posteriorly reticulate; about as long as the middle toe without its claw. Outer toe as long as or rather longer than the middle; its claw smaller than that of the middle; tip of inner claw reaching base of middle. Claws small, short, compressed, moderately curved and acute, the inner edge of the middle one somewhat dilated.

With the general appearance of *Brachyrhamphus*, this genus differs from the latter in the bill and feet. The bill is deeper at the base, and more compressed throughout; the feet are still more different, having very broad transverse scutellation on the anterior face of the tarsus, instead of polygonal reticulation, and are larger, both relatively and absolutely, with longer, much more compressed tarsi, than in *Brachyrhamphus*. The type of the genus is the old *Alca antiqua*, *Gm.* A second species occurs, which differs from the type, as far as form is concerned, in a slenderer bill, and in the presence of a conspicuous crest.

Species (2).

- Not crested; bill stout, depth at base more than half the length of culmen; white on sides of vertex not extending in advance of the eyes. - - - - - *antiquus.*
- Crested; bill slender, depth at base about equal to half the length of culmen; white on sides of vertex extending along sides of forehead nearly to the bill. - - - - - *wurmizusume.*

Synthliborhamphus antiquus (Gmel.) Brandt.—Habitat: American and Asiatic Coasts of the North Pacific. Kamtschatka, Japan Seas. Sitka, Russian America (Mus. Smiths. Inst.) Mus. Acad. Philad.

With the form, etc., typical of the genus, as above described.

Adult.—High breeding plumage. Bill whitish or yellowish, culmen and base of both mandibles abruptly black; legs and feet anteriorly apparently whitish or yellowish; posteriorly, with both surfaces of the webs, black. Head all around, and throat, black; pure and intense above, on the sides below, chin and throat, tinged with fuliginous brown. A conspicuous stripe of pure white beginning over each eye, and extending backwards over the sides of the occiput, connected across the nape by some white feathers, and spreading on the sides and back of the neck, as a large disconnected series of trenchantly defined white streaks. Trace of white on each eyelid. Entire upper parts clear dark plumbeous, blackening on the upper tail-coverts and tail. Upper surface of wings the same, or rather darker, the edge of the wing all along from the elbow, and the exposed parts of primaries, blackish; entire under surface of wings white, except just along the edges, where it is mottled with dusky; the basal portion of the inner webs and shafts of primaries whitish; secondaries like the wing-coverts, or rather darker, their bases whitish. Sides of the body under the wings pure velvety black, in marked contrast to the clear plumbeous of the upper parts and white of the lower. These black feathers are posteriorly greatly elongated, reaching quite to the tail, and overlying the sides of the rump and the flanks, which latter, however, are seen to be pure white on raising the elongated superincumbent feathers. This black along the sides extends anteriorly in front of the wings, and, still strongly contrasted with the plumbeous of the interscapulars, continues on as a band quite to the nape, which it crosses to become confluent with its fellow of the opposite side. On the sides of the neck it is thickly marked with the pure white streaks already described. The fuliginous black of the chin and throat is continuous with that of the sides of the head as far as the auriculars; further on it merely extends as a point along the middle of the throat, being separated from the black of the sides of the nape by a large white area, an extension to the auriculars of the white which is the colour of the whole under parts, except the sides under the wings, as already described.

Length 9·50 to 10·50; extent 16·75 to 18·25; wing 5·50; tail 1·60; bill along culmen ·60, along rictus 1·20, along gonys ·40, depth at base ·30, width ·20; tarsus 1·00; middle toe and claw 1·25, outer do. 1·15, inner do. 1·00.

Younger.—Bill and feet as above described. "Iris brown," (label). Upper parts as in the adult, but darker, the plumbeous being obscured

by dusky, especially on the wing and tail-coverts, and lower back. Forehead, crown, nape and back of neck, sooty black, entirely unrelieved by white streaks, or with only traces of the latter on the sides of the occiput. Eyelids sometimes largely white. No black on the throat or chin; traces of it in a dusky mottling about the base of the bill. White of under parts extending on sides of head below and behind nearly to the eyes, and far around on the sides of the nape, so that only a median nuchal line is left blackish. Sides of body under the wings not pure black, but merely dusky plumbeous, and this not continuous on the feathers over the flanks, these being in some part white, producing a white and plumbeous variegation. The line of this dusky plumbeous hardly extends in front of the wings to the sides of the neck. Under parts white, as before, the bases of the inner webs of the primaries rather more white than in the adult.

The above described differences between the adult and young are very decided, and might suggest a distinction of species, were not various means between the extremes forthcoming. Beyond these variations in plumage the species is very constant in characters, with the exception of the bill. This differs a good deal as to its size and shape; but nevertheless usually preserves the specific characters which distinguish it from that of *Wurmizusume*. Thus the difference in length between the bills of two perfectly mature examples, absolutely identical in plumage, and in all other respects, save length of bill, amounts to a tenth of an inch along the culmen. This difference being accompanied by a corresponding difference in depth and width, gives a readily appreciable difference in shape of the bill.

The only species to which the present bears any special resemblance is *Wurmizusume*. The comparative characters of the latter are dwelt upon at length in the article immediately succeeding.

It is barely possible that the bird here described is not the veritable *Alca antiqua*, *Gm.* ("Antient auk" of Pennant). In the description of these authors the upper parts are said to be dusky or sooty black, whereas, as will be seen by the description, the subject of the present article has these parts clear plumbeous. But we have just seen that the young of the present bird has the upper parts decidedly darker and duller than the adult; in fact tending, especially upon the wings and lower back, to dusky. The limits within which the species is known to vary in this respect are sufficiently wide to allow its reference to the bird of Pennant, Latham and Gmelin; especially when it is remembered that the particular

descriptive terms used by these authors may not have been critically correct. It seems unnecessary, and it would be perhaps unjustifiable, to attempt to discriminate the present species from *Alca antiqua*, upon the grounds just mentioned. They had best be regarded as the same, at least until suites of specimens may determine the existence of two species, differing in the particulars above mentioned. No indications of a distinction of species can be found in the extensive series of specimens at present contained in American collections.

This species, in the condition here described as that of the adult, is the *Uria senicula*, *Pallas*; and should bear the name of *Synthliborhamphus seniculus* in the event of its not proving the same as *Alca antiqua*, *Gm.* *Mergulus cirrhocephalus*, *Vigors* (*Arctica cirrhocephala*, *Gray*), is the same bird, in the same condition of maturity. The species has no other synonyms of consequence, except those resulting from its reference to several different genera.

In breeding plumage it is a very handsome bird, being in fact—with the exception of *Wurmizusume*—the handsomest of the *Urinæ*. It is of frequent occurrence along the coast and among the islands of the North Pacific; extending, on the Asiatic side, to Japan, and on the American, to Washington Territory, U. S. It apparently migrates southward in winter. It breeds in the vicinity of Sitka, R. A. It is well represented by numerous specimens in the collections of the Philadelphia Academy and of the Smithsonian Institution. It has been figured by Temminck and Schlegel, and by Audubon.

Synthliborhamphus Wurmizusume (Temm.), Coues. — Habitat: Asiatic and American coasts of the North Pacific; south to Japan and Washington Territory, U. S. Specimens in Mus. Acad. Philadelphia, and Mus. Smiths. Inst.

Bill more slender and elongated than in the type of the genus, the depth at base less, and the compression not so great, the sides of the bill being less vertical; rictus nearly straight. Rather larger than *S. antiquus*.

Adult.—Bill decidedly yellow (in the dried state), the ridge of upper mandible alone black. Feet dull livid bluish, the webs dusky (feet dusky yellowish in the dried state). "Eye brilliant gray, iris black" (label). A large conspicuous crest springing from the extreme forehead of a dozen (more or less) slender elongated feathers, not recurved, but extending straight backwards quite to the occiput. A large conspicuous series of white feathers on each side of the top of the head, extending from the base of the crest, on the forehead far in

advance of the eyes, to the side of the nape; there more or less confluent with each other, and then dispersed as isolated white streaks over the sides of the neck to the shoulders. In many specimens, however, apparently quite adult, these white stripes are hardly, if at all, apparent beyond the nape. Rest of head, including chin and upper part of throat, sooty or fuscous blackish, sometimes with a cinereous tint; this colour extending as far as the interscapular region, from which point the upper parts are more decidedly plumbeous, only the wings and tail being somewhat darker and more fuscous. Sides under the wings plumbeous black quite to the flanks; this colour also extending forward in front of the wings and continuous with that of the sides of the neck and head. Under surface of wings pure white, except a little dusky clouding along the edge; bases of primaries and the greater portion of their inner webs white, deepening very gradually through a continuously deepening shade of brownish gray, into dusky at the tips. Entire under parts (except the sides, as just described) pure white.

Length 10·50 to 11·00; extent 18·00 to 18·50; wing 5·50; tail 1·75; tarsus 1·00; middle toe and claw 1·25, outer 1·20, inner 1·00; bill along culmen ·70, rictus 1·10; gonys ·40; height at base ·25 to ·30, width about the same.

Younger.—Bill and feet as above; (bill sometimes, however, wholly blackish). Without a crest; no white feathers about head, or only slight traces thereof. Face, including region just about the base of the bill, both above and below, crown and sides of the head to the level of the commissure, with nape and back of neck, plumbeous dusky; other upper parts, particularly the wings, the same, but most of the back with a more decided tint of plumbeous. Under wing-coverts and primaries as in the adult. Sides under the wings narrowly fusco-plumbeous, the lengthened feathers over the flanks variegated with white. Entire under parts otherwise white; this colour extending far around on the sides of the upper neck, nape and occiput.

Considerable variation in plumage as well as in size, and to a degree, in shape of bill, is exhibited by the numerous specimens examined. The differences in the bill are chiefly those of size, the relative proportions of the various measurements being pretty constantly preserved. The bill is always slenderer, and usually longer than that of *Antiquus*, approaching in this respect the bills of the true *Brachyrhamphi*. The size of the whole bird varies somewhat, but not

to any remarkable degree. In apparently equally adult specimens, the two series of white feathers, which form conspicuous stripes on the sides of the vertex and nape, vary much in length. Sometimes they spread out on the sides of the hind-neck to almost as great an extent as is witnessed in the most highly-plumaged specimens of *Antiquus*; again they may stop abruptly on the occiput, or at least on the nape. The comparative amount of dusky and plumbeous on the upper parts is various, as is also the intensity of either of these hues. Thus a specimen from Japan in the collection of the Philadelphia Academy has the upper parts, including the wing-coverts, bluish ashy, or bluish plumbeous, light enough to form a marked contrast with the band of nearly black which crosses the nuchal region, and descends on either side under the wings. In this specimen, also, the bill is blackish, although it is evidently an adult bird, having a crest an inch long. There is sometimes much white on the eyelids, sometimes none. The outline of the white on the sides of the hind head and of the neck varies; the younger the bird, the more the white encroaches on these parts.

It is not ascertained positively that the crest which so strongly characterizes perfect specimens of this species is a constant feature, that is, obtained at a certain age, and ever afterwards worn. Very possibly, it is only assumed during the breeding season; and falls off afterwards, so that perfectly adult winter specimens may be without it. It is at all events not to be enumerated among the infallible diagnostic points of the species.

Compared with *S. antiquus*, the species is at once distinguished, when in adult breeding plumage, by the presence of a crest, and the different extent of the white stripes and streaks upon the head, nape and neck. (Consult descriptions above given). These differences aside, it is a larger bird, on an average, though some specimens do not exceed in size some examples of *Antiquus*. The bill is slenderer, though not necessarily longer, more acute at the tip, comparatively not so deep at the base, and rather less compressed; the culmen, rictus and gonyes straighter. The identification of very young birds, however, is sometimes attended with difficulty; and some specimens in the present collections cannot, in fact, be satisfactorily determined. This state of affairs, however, is by no means unparalleled in other cases of perfectly distinct species, and by no means militates against the belief in the specified distinction of the two birds now under consideration. The adults cannot by any possibility be mistaken for each other.

This species is well represented in all its variety, by numerous specimens in the collections of the Philadelphia Academy and the Smithsonian Institution; though not contained, as far as heard from, in any other American cabinets. It is of frequent occurrence on the coasts of the North Pacific, and appears to be particularly abundant in the vicinity of Japan, whence most of the specimens described or recorded have been obtained. Its occurrence on the coast of the United States is open to question. Several specimens of *S. antiquus* (at least of the bird described in this paper under that name) are in our collections from Washington Territory, labelled "*Brachyrhamphus Temminckii*," and these appear to represent the species whose habits, etc., are alluded to by Drs. Cooper and Suckley, vol. xii., part 2, of the Pacific Railroad Reports (Nat. Hist. Wash. Terr. p. 287, above cited) under the name of *Brachyrhamphus Temminckii*. But the description there given is that of the true *Temminckii*, having been copied from Mr. Cassin's article on the 'Birds of North America.'

The name which heads this article has priority over "*Temminckii*" of Prof. Brandt, and is therefore to be adopted, though its barbarous character is, assuredly, a matter of regret. It varies in orthography with different writers.

(To be continued.)

List of the Dermaptera discovered by J. K. Lord, Esq., in Egypt, and in the adjoining regions; with descriptions of the new species. By F. WALKER, F.L.S.

THE species of Dermaptera found by Mr. Lord are not numerous, and, with a few exceptions, are not of much interest. *Periplaneta Americana* and *P. orientalis* are not natives of Egypt, but have been spread over the world by means of commerce. The genus *Eremiaphila* is remarkable on account of its adaptation to the colour of the soil on which it dwells. The genus *Dericorys* has a peculiar structure, and includes a single species which has hitherto been only found in Egypt. The two species of locusts *Acridium peregrinum* and *Pachytylus cinerascens* were common in these regions, but no swarms of them occurred during Mr. Lord's stay there. *A. peregrinum* is the locust whose devastations in Algeria and in Syria have lately been recorded. *P. cinerascens* and *P. migratorius* are considered by some authors as varieties of one species, by others as two distinct species. I have not observed any intermediate forms,

and I believe that they should be considered as specifically distinct, and that *P. cinerascens* has been often mentioned by the name of *P. migratorius*. The former species is more widely spread than the latter, and is abundant in New Zealand, where it is occasionally of a much darker colour than it is in other localities, and is sometimes wholly blackish. The devastating locust of S. Africa is another species.

Fam. FORFICULIDÆ.—Gen. LABIDURA, *Leach*.

1. *Flavipes*. Forficula flavipes, *Fabr. Ent. Syst.* ii. 2. Cairo. Wâdy Gennèh. Wâdy Amara. Wâdy Gharandel. Inhabits also the West Coast of Africa. The apical forceps is longest in the winged state, and thereby adapted to its office in the unfolding of the wings.

Fam. POLYPHAGIDÆ.—Gen. POLYPHAGA, *Brullé*.

2. *Ægyptiaca*. Blatta Ægyptiaca, *Linn. Syst. Nat.* ii., 687. Cairo. Inhabits Malta, Greece, and some parts of Asia.

Fam. BLATTIDÆ.—Gen. PERIPLANETA, *Burm.*

3. *Americana*. Blatta Americana, *Linn. Syst. Nat.* ii., 687. Cairo.

4. *Orientalis*. Blatta orientalis, *Linn. Syst. Nat.* ii., 688. Cairo.

5. *Lateralis*, Walk. Cat. Blatt. 136. Cairo.

Fam. MANTIDÆ.—Gen. EREMIAPHILA, *Lefebvre*.

6. *Audouini*, Lefebvre, Ann. Soc. Ent. Fr. iv. 482. Rafla.

Gen. BLEPHARIS, *Serv.*

7. *Mendica*. Mantis mendica, *Fabr. Ent. Syst.* ii. 17. Akeck. Mount Sinai.

Gen. MANTIS, *Linn.*

8. *Religiosa*, Linn. Syst. Nat. ii., 690. Souakin. Wâdy Ferran. Inhabits S. Europe.

9. *Simulacrum*, *Fabr. Ent. Syst.* ii. 21. Cairo. Heliopolis. Harkeko. Inhabits Hindostan and W. Africa.

Fam. GRYLLIDÆ.—Gen. GRYLLOTALPA, *Ray*.

10. *Africana*, Pal. Beauv. Ins. 229. Cairo. Mount Sinai. Inhabits Africa, Asia, Australia and New Zealand.

Gen. GRYLLUS, *Linn.*

11. *Capensis*. Acheta Capensis, *Fabr. Ent. Syst.* ii., 31. Akeck. Mount Sinai. Inhabits S. Europe, S. Asia, Australia and America.

Gen. PHYLLOPTERA, *Serv.*

12. *Proteifolia*, Burm. Handb. Ent. ii. 692. Hor Tamanib.

Fam. TRYXALIDÆ.—Gen. TRYXALIS, *Fabr.*

13. *Unguiculata*, Ramb. Faune And. 72. Cairo. Heliopolis. Souakin. Harkeko. Mount Sinai.

Gen. PYRGOMORPHA, *Serv.*

14. *Rosea*. *Truxalis rosea*, *Charp. Hor. Ent.* 128. Cairo. Souakin. Wâdy Gennèh. Mount Sinai.

Fam. PAMPHAGIDÆ.—Gen. AKICERA, *Serv.*

15. *Informis*. *Female*.—Cinereous, compressed, apterous, thickly and minutely tuberculate. Head short; vertex concave, elliptical; front with four keels which diverge towards the face, and are armed with minute obtuse black spines. Eyes fusiform, testaceous, transverse. Antennæ nine-jointed, flat, dilated, short. Prothorax highly keeled, the crest rounded, its hind part spinose; fore border and hind border elongated, acute. Abdomen keeled, shorter than the thorax, the crest armed with spines. Legs short, stout; hind femora broad, with spines above and beneath. Length of the body 9 lines. The specimen described seems to be in an early state of life. Harkeko.

Fam. PHYMATIDÆ.—Gen. POECILOCERA, *Serv.*

16. *Bufonia*. *Decticus bufonius*, *Klug. Symb. Phys.* 3, 2; pl. 25, f. 3, 4. Hor Tamanib? Wâdy Ferran. Wâdy Nash. Mount Sinai. The specimens from Hor Tamanib are in a very early state of growth, and may belong to another species.

17. *Vignandii*, *Guer. Lefebvre, Voy. Abyss.* 338; pl. 6, f. 4. The specimen figured in the above-mentioned work is much smaller than the individuals here recorded. Wâdy Gennèh. Wâdy Amara.

Fam. ACRIDIDÆ.—Gen. DERICORYS, *Serv.*

18. *Albidula*, *Serv. Hist. Orth.* 639. Wâdy Sidri. Wâdy Nash.

Gen. CYRTACANTHAERIS, *Walk.*

19. *Flavicornis*. *Gryllus flavicornis*, *Fabr. Ent. Syst.* ii. 52. Zayla.
20. *Compta*, *Walk. Cat. Derm.* iv. 613. Souakin.

Gen. ACRIDIUM, *Geoffr.*

21. *Peregrinum*, Oliv. Voy. Emp. Orth. ii. 424. Akeck. Rafla. Zayla.
 22. *Albidiferum*, Walk. Cat. Derm. iv. 627.

Gen. CALOPTENUS, *Burm.*

23. *Serapis*. Calliptamus Serapis, *Serv. Hist. Orth.* 689. Mount Sinai.
 24. *Testaceus*, Walk. Cat. Derm. iv. 685. Wâdy Gennèh.
 25. *Scriptipennis*, Walk. Cat. Derm. iv. 686. Wâdy Ferran.
 26. *Coneisus*, Walk. Cat. Derm. iv. 687. Zayla.
 27. *Signatus*, Walk. Cat. Derm. iv. 687. Souakin.
 28. *Turbidus*, Walk. Cat. Derm. vi. 688. Shoobra.
 29. *Mutator*, Walk. Cat. Derm. iv. 689. Cairo. Shoobra. Souakin. Zayla. Wâdy Gennèh. Wâdy Ferran. Mount Sinai.
 30. *Cincticollis*, Walk. Cat. Derm. iv. 689. Mount Sinai.

Fam. ŒDIPODIDÆ.—Gen. PACHYTYLUS, *Fisch.*

31. *Cinerascens*. Gryllus cinerascens, *Fabr. Ent. Syst.* ii. 59. Akeck. Harkeko.

Gen. ŒDIPODA, *Latr.*

32. *Arenaria*, Lucas, Expl. Scient. Alg. Art. iv; Atlas Orth. pl. 4, f. 1. Souakin. Harkeko Rafla.
 33. *Cærulans*. Acridium cærulans, *Oliv. Enc. Meth.* vi. 225. Tôr. Mount Sinai. Inhabits S. Europe.
 34. *Latifasciata*. *Male*.—Testaceous, stout, whitish beneath. Head whitish, excepting the vertex, which has a furrow on each side of the middle keel; fastigium widening towards its fore border, which is slightly notched; front with four slight keels which diverge much towards the face. Eyes short, elliptical, rather prominent. Antennæ slender, whitish at the base. Prothorax with an extremely slight keel; fore part short, with two transverse impressed lines; hind part elongated; hind border forming a slightly oblique angle. Legs mostly whitish; hind femora with a testaceous subapical band and with testaceous tips, and on the inner side with a black interrupted stripe. Wings pellucid; veins whitish. Fore wings testaceous, and with brown marks on one-third of the surface from the base; three exterior brown patches, two of them on the hind border, where there are three more exterior brown dots. Hind wings with a very broad black

band, which is broadest in the middle. Length of the body $13\frac{1}{2}$ lines; expansion of the fore wings $29\frac{1}{2}$ lines. Plate 7, fig. 9 of the *Dermaptera* in Savigny's work on Egypt seems to represent this species. Rafla.

35. *Tricineta*. *Male and female*. Testaceous, whitish beneath. Head with the vertex like that of *Æ. latifasciata*, but rather narrower; front with the usual keels. Eyes fawn-colour, elliptical, rather prominent. Antennæ slender, with some blackish bands. Prothorax like that of *Æ. latifasciata*, but with the hind border rounded and tip elongated. Hind femora with two blackish patches on the inner side and a subapical brown patch on the outer side. Fore wings with three broad brown or blackish bands; first band antemedial; second postmedial; third subapical. Hind wings colourless, with a very broad black band. Length of the body 9—13 lines; expansion of the fore wings 24—32 lines. The three bands on the fore wings distinguish this species from *Æ. octofasciata*. Wâdy Gennèh. Wâdy Ferran. Mount Sinai.

36. *Terminalis*. *Male*.—Testaceous. Head whitish, except the vertex, which has a slight furrow on each side of the slight middle keel; front with four well-defined keels which diverge towards the face. Eyes fawn-colour, short, elliptical, rather prominent. Antennæ slender. Prothorax like that of *Æ. tricineta*. Pectus whitish. Hind femora with a blackish disk on each side. Wings pellucid. Fore wings with three bands; first band testaceous, basal, very broad, with brown dots limited by a blackish line; second and third bands blackish, second irregular, third apical. Hind wings with a very broad black band. Length of the body 11 lines; expansion of the fore wings 26 lines. Mount Sinai.

37. *Obscurata*. *Male*.—Testaceous. Vertex narrower than in the three preceding species; middle keel very slight; the four keels of the front very strongly marked. Eyes elliptical. Antennæ slender. Prothorax like that of the two preceding species, but with a more distinct keel. Pectus and under side of the abdomen pale yellow. Hind femora with a blackish stripe on the inner side, and another beneath. Wings pellucid. Fore wings with several blackish dots and a few blackish patches, the largest patch forming a subapical band; veins in the exterior part of the wing mostly black. Hind wings with two broad black bands, the second apical; veins black, except towards the base, where the wings are pale testaceous. Length of the body $11\frac{1}{2}$ lines; expansion of the fore wings 26 lines. The

markings of the fore wings distinguish it from *Æ. octofusciata*. Wâdy Gennèh.

38. *Rubescens*. *Male*.—Tawny. Vertex narrow, like that of *Æ. obscurata*, but with a more distinct keel; front with four well-defined keels. Eyes elliptical. Antennæ slender, with several blackish bands. Prothorax with a very slight keel; fore part very short; hind border rounded, hardly angular. Pectus and under side of abdomen pale yellowish. Hind femora with a blackish interrupted stripe on the inner side, and with a row of five blackish points on the outer side. Wings cinereous-hyaline. Fore wings with numerous irregular ringlets, which are formed by black veins. Hind wings with black veins. Length of the body $12\frac{1}{2}$ lines; expansion of the fore wings 26 lines. Wâdy Gennèh.

39. *Tincta*. *Male*.—Tawny, slender. Head and prothorax with some small piceous marks. Vertex narrow, with a very slight keel; front with four distinct keels which diverge slightly towards the face. Eyes ferruginous, elliptical. Antennæ slender, piceous towards the tips. Prothorax with a slight keel; fore part rugose, very short; hind border rounded. Hind femora with some black points in three rows on the outer side. Fore wings cinereous, with three black patches, the first near the base, the third beyond the middle. Hind wings brown; veins black. Length of the body $8\frac{1}{2}$ lines; expansion of the fore wings 20 lines. Hor Tamanib.

40. *Variiegata*. *Male and Female*.—Tawny, slender, paler beneath. Vertex narrow, with no middle keel; front with four strongly marked keels which diverge towards the face. Eyes elliptical, rather prominent. Antennæ slender, piceous towards the tips. Prothorax short, with a slight keel; fore part with two transverse impressed lines; a black patch on each side including a pale testaceous dot; hind border rounded, in no wise angular. Hind femora with three black patches on the inner side. Fore wings colourless, testaceous towards the base; a brown costal stripe extending from the base to nearly half the length, and including an elongated colourless spot; some exterior brown streaks; exterior costal sectors clouded with brown. Hind wings pellucid, with an irregular black band, which is much abbreviated in front, and with a small black apical mark; veins black, whitish towards the base. Length of the body 7—9 lines; expansion of the fore wings 16—20 lines. It differs somewhat from the typical form of *Ædipoda*. Cairo. Souakin.

Gen. STENOBOTHRUS, *Fisch.*

41. *Lætus*. *Male*.—Ferruginous, testaceous beneath. Head and prothorax with two blackish stripes, which are bordered with yellowish concisely on the inner side and diffusely on the outer side. Vertex in front elongate-conical, depressed; front with four distinct keels which diverge slightly towards the face. Eyes elliptical, oblique. Antennæ slender. Prothorax with a slight keel; the two stripes broader than those on the head, and containing some pale marks; hind border rounded. Hind femora with three black patches on the inner side. Wings cinereous. Fore wings with some brown patches and spots, and with a few black costal patches, of which the first is elongated and includes some small pale marks. Hind wings with black veins. Length of the body $8\frac{1}{2}$ lines; expansion of the fore wings 19 lines. *Female*.—Larger and rather paler than the male. Length of the body 12 lines; expansion of the fore wings 26 lines. Cairo.

42. *Limosus*. *Male*.—Dingy testaceous. Head with two oblique piceous streaks on each side between the eye and the hind border; vertex punctured, conical and depressed in front; front punctured, with four slight keels which diverge towards the face. Eyes piceous, oblique, elliptical. Antennæ piceous, slender, testaceous towards the base. Prothorax short, with a slight keel; fore part with two transverse impressed lines; hind part slightly elongated; hind border slightly angular. Hind femora with three black patches on the inner side. Fore wings cinereous, with three large black patches and some black points; third patch much elongated, occupying more than one-third of the length from the tip. Hind wings brownish; veins black. Length of the body 10 lines; expansion of the fore wings 20 lines. Hor 'Tamanib.

Gen. OXYCORYPHUS, *Fisch.*

43. *Venustus*. *Female*.—Pale green or testaceous. Head and prothorax with a broad deep green stripe. Vertex with a flat, angular and acute fastigium; front elongate, slightly oblique, with four slight keels, the inner pair slightly diverging towards the face. Eyes testaceous, oblique, elongate-oval. Antennæ ferruginous, flat, slightly lanceolate, much longer than the head. Prothorax with a very slight keel, and with two very slight transverse impressed lines; a short, slightly angular whitish line on each side of the stripe; an

abbreviated brown stripe on each side, including a short oblique whitish streak; hind part slightly elongated; hind border slightly angular. Fore wings green; a brown discoidal streak, including a few elongated pale testaceous points or little streaks; in some cases tips reddish. Hind wings pellucid. Length of the body $10\frac{1}{2}$ lines; expansion of the fore wings 18 lines. Cairo.

Gen. CHROTOGONUS, *Serv.*

44. *Lugubris*. Ommexecha lugubre, *Blanch. Ann. Soc. Ent. Fr.* v. 616; pl. 22, f. 5. Cairo. Heliopolis. Souakin. Harkeko.

FRANCIS WALKER.

Unusual Oviposition of Rhodites Rosæ, Linn.—As two years ago I published in this journal a case of an unusual number of normal bedeguars on the common briar (*Zool. S. S.* 1206), I think it expedient to use the same channel for the record of a case of abnormal egg-laying by the same insect, *Rhodites Rosæ*, Linn. There is now before me a sprig of the briar, the principal stem of which is of about the thickness of a goose-quill. Every alternate leaf of this twig presents one or several leaflets crowned with one or two very small tufts of bedeguar bristles. The stem is quite free from them. Beginning with the lowest leaf, I find two tufts on the midrib of the same left leaflets; the next alternate leaf possesses a tuft in the axil of the two leaflets nearest to the stem, two tufts on the nearest left leaflet, one tuft on the second right leaflet, and a tuft on both the third leaflets; the stems of the third and fourth alternate leaves are stunted, and each leaflet of these exhibits one tuft; the fifth alternate leaf shows the left leaflet of the second pair of leaflets provided with one tuft, and the following pair of leaflets is likewise adorned. I give this detailed account, because, to my mind, it proves the *modus operandi* of the laying female as plainly as any written record. The insect in question must have been physically exhausted, or else of too weak a constitution to choose the hard stem of the rose for the deposition of its eggs; yet, impelled by the *twin* of reason, instinct, it wanted to get rid of its eggs. So instead of girdling the hard stem by a series of punctures, producing a many-celled bedeguar, it rambled over the whole twig, and, puncturing the soft leaves in one or more places, deposited in each spot a single egg. Vagaries of this sort have been observed before in this species, as far as an egg or two are concerned, but never yet to my knowledge has it been noticed, that a whole batch of eggs has been disseminated by the present *Rhodites* in the manner here described; and the race would be doomed speedily to perish, if it should become the rule, unless indeed an appropriate increase of the size of the solitary cell thus created took place, which would allow the inmate to sustain its life, by feeding on the vegetal juices, after the manner of allied species. But so long as this does not occur, the afflux of sap, increased as it is by the single irritating puncture, is wholly inadequate to supply to the larva sufficient nourishment, and the tuft generally dries up before the former has attained the full-grown state.—*Albert Müller; South Norwood, July 24, 1870.*

Accident to the Rhinoceros at the Zoological Gardens.—The young male single-horned rhinoceros at the Zoological Gardens, Regent's Park, has just afforded a very singular instance of self-mutilation. The three magnificent specimens are now located in the new elephant house and yards. On Wednesday last the male and female of the single-horned species were in the adjoining yards, when the male attempted to upheave the massive iron railings dividing them by placing his horn under the lower transverse bar and raising it. Fortunately, the inclosure was constructed with a perfect knowledge of the enormous strength of these pachyderms, and could not be moved; but the animal made repeated attempts, and at last the thick massive horn was torn away from the head and fell into the yard. At first there was a considerable loss of blood, and the animal roared lustily for a few minutes. He soon, however, became calm, and is now as quiet as usual. The large surface exposed was shortly covered with flies, and, to prevent their ova being deposited, Mr. Bartlett most judiciously applied a coating of neat's foot oil. The animal now takes his food as usual, and seems none the worse for the accident. The fact that an animal should of his own accord injure himself to such an extent is another proof, if one were wanting, that the sensitiveness to pain is not so great in animals of low cerebral organization as in man. The three young male giraffes, whose arrival in London we noticed a few weeks since, have been deposited in the Gardens by Messrs. Hagenbeck and Rice.—*Editor of 'Field.'*

Rhinoceros detaching its Horn.—The "accident" that happened to the large single-horned rhinoceros in the Zoological Gardens was mentioned in last week's 'Field' (p. 152). It is not unprecedented, as the reader will find by referring to my contributions to the 'Field,' No. 871, p. 192, and No. 877, p. 344. Several years ago, an animal of the same species knocked off its horn in the Zoological Garden at Moscow, and soon afterwards began to grow another, the detached horn being preserved in the museum of that city; and before learning of that occurrence I had argued on the probability of the so-called horns of these animals being occasionally shed and renewed, as will be seen by reference to the communications mentioned.—*From the 'Field.'*

Nesting of the Hobby in South Devon.—The keeper here tells me that a pair of hobbies nested again in the park this summer. He destroyed the young ones before they were fully fledged, and shot both the old birds. I saw the remains of the male bird yesterday among a heap of sparrowhawks, jays and other delinquents that had paid for their trespasses with their lives.—*Murray A. Mathew; Gidleigh Park, Chagford, South Devon, August 16, 1870.*

Note on the Eastern Range of the European Merlin.—With reference to the eastern range of this species, referred to by Captain Feilden (S. S. 2261), I may mention that I have seen specimens from Eastern Siberia, obtained near the coast of the Sea of Okhotsk.—*J. H. Gurney; Marldon, Totnes, July 30, 1870.*

Note on the Dark-coloured Harrier of South Africa.—The dark-coloured harrier of South Africa (*Circus maurus*), alluded to in the 'Zoologist' (S. S. 2261) in a quotation from the 'Field,' is specifically distinct from the dark or melanous race of Montagu's harrier (*Circus cineraceus*). The adult male of the dark variety of the latter assumes the same gray dress as the male of the ordinary race, except that the gray is of a much darker and more smoky hue, whereas the adult male of *Circus*

maurus is gray only on the outer webs of the primaries and of some of the wing-coverts. *Circus maurus* is, moreover, a considerably larger bird than *Circus cineraceus*.—*J. H. Gurney*.

Black Montagu's Harrier (*Circus cineraceus*, var.; *C. ater*, *Vieill.*).—In the 'Zoologist' (Zool. 1806) Mr. Nicholls mentions finding the entire egg of a sky lark in a Montagu's harrier, which, as he informed me in a private communication, was shot at the Praul Head, South Devon, by a farmer, and I have read of several other instances. In the 'Naturalist,' for example, for 1852 (p. 19), Mr. Cooper, of the Warrington Museum, records skinning a Montagu's harrier and discovering an unbroken sky lark's egg inside it. I quote these facts because they are a perfect corroboration of the interesting note by Mr. B. Bates. In the same letter, Mr. Nicholls alludes to a young male of this species, the colour of which was "a uniform very dark brown, appearing almost black at a little distance, except a broken patch of white at the nape." I think this was evidently one of the dark race. I have seen the Canterbury and Seville specimens, and with regard to the Dover one, I think it is one of two examples mentioned in Morris's 'British Birds,' though I have not that work at hand to refer to. He states that two Montagu's harriers "of a uniform dark colour," in the collection of Mr. Chaffey, of Dodington, in Kent, were shot by the preventive men at Dover. One of them, at Mr. Chaffey's decease, became the property of Mr. Scott, of Chudleigh, in Devon, who lately showed it to my father, who also last year saw a female of the same melanism in the Exeter Museum, which Mr. D'Urban, the curator, informed him had been killed at Lyme Regis. I have seen a nice specimen in the collection of Mr. Hancock, of Newcastle, and one in the Chichester Museum, shot at Selsea. Mr. Stevenson ('Birds of Norfolk,' vol. i., p. 42) enumerates no less than ten, so that this melanism, or black variety of Montagu's harrier, cannot be very uncommon.—*J. H. Gurney, jun.*; 2, *Beta Place, Alpha Road, N. W.*, August 1, 1870.

[The following is the passage in 'Birds of Norfolk' to which Mr. Gurney refers:— "This bird is extremely interesting, as exhibiting a melanism in the plumage of this species, occasionally though rarely noticed in foreign as well as British specimens, and which thus, accidentally as it were, completes the chain between the moor buzzard and the ordinary harrier type. Mr. Gurney, who has met with several examples of this variety, informs me that 'the old male is of a very dark smoky-gray; the female and young are entire purplish chocolate-brown.' Two French specimens, an adult male and a nestling, will be found in the Raptorial collection of the Norwich Museum, and Mr. Gurney has also seen another female from Abyssinia, besides the three following, all killed in England: one immature example, much resembling the Yarmouth bird, preserved in the Canterbury Museum, and killed in Kent; a young male, shot at Selsea, in the Chichester Museum; and a female, most probably adult, but not so dark as the Yarmouth bird, in Mr. Newcome's collection, shot by himself some years back from a nest in Feltwell Sedge Fen, in this county. To these last I can also add two other British-killed specimens of this melanite type—one, as I am informed by Mr. Alfred Newton, a male, shot at North Chapel, near Petworth, Sussex, in either 1855 or the following year, now in the possession of Mr. Knox (author of 'The Birds of Sussex'), who examined it in company with the late Mr. Yarrell; and the other an adult female, killed at Yarmouth in July, 1855, which I recently discovered in the Dennis collection at the Bury Museum. 'Viellot (writes Mr. Gurney) made this form

a distinct species, under the name of *Circus ater* (Dict. Hist. Nat. iv., p. 459); but in the *Revue de Zool.* for 1850, p. 82, is a note by Dr. Pucheran, intended to show that it is only a variety of *C. cineraceus*. Prince Buonaparte also confirms this view in p. 492 of the same volume; and I have no doubt that it is merely a variety, though I suspect it may be an hereditary one from so many instances of it occurring."—*Edward Newman.*]

The Black Variety of Circus cineraceus.—Some few weeks back I sent an account to the 'Field' of a hawk which I received, supposed to be a black variety of Montagu's harrier. About a fortnight ago, in the same wood, its mate the female was seen, with three young ones. One was shot on the 28th, and I shot one myself on the 29th of last month. The breasts are of a most beautiful red-brown, the back and head almost black, the feathers edged with the same colour, brown. They are both of them females. I have sent you this, thinking that some of your readers may know from the young whether they are the common Montagu's harrier, or whether they are a distinct black harrier.—*B. Bates; Eastbourne.—From the 'Field.'*

White Eggs of a Robin.—Obtained this season a nest of the robin, containing five perfectly pure white eggs.—*E. Charles Moor; Great Bealings, Woodbridge, Suffolk, August 4, 1870.*

Grayheaded Wagtail near Clifton.—On the 16th of June last I obtained a pair of grayheaded wagtails in a field near Clifton. As in the previous instance of the capture of this species recorded by me, they were associating with specimens of the yellow wagtail.—*Marcus S. C. Rickards; Clifton, August 12, 1870.*

Noisy Gatherings of the House Sparrow.—The occasional noisy meetings of the house sparrow, usually about six or seven in number, and frequently held in a low hedge, will be familiar to all your readers. On these occasions their attention is so entirely engaged by the business in hand, that they may often be approached within a few feet, and I once saw a cat dash into a party of this kind and make one of them an easy prey, from their total disregard of their usual caution: but I have never yet met with what seemed to me a satisfactory explanation of the cause of these meetings. I have always noticed that these little parties consist of one female bird only and several males, who flutter round her with drooping wings, keeping up an incessant chattering all the time, while she responds to their attentions in a coquettish way, occasionally making a coy peck at one or another, and I believe that these meetings are always convened for purposes of flirtation, ending probably in one of the male aspirants being selected as the lady's mate. A little bit of genuine love-making is always carried on in a very quiet way between the sexes of these birds, and is very different to the hubbub that always characterizes the assemblages to which I have referred.—*Gerard Barton; Fundenhall Grange, Wyndham, July 28, 1870.*

White Egg of a Linnet.—Took this season a pure white egg of the common gray linnet.—*E. Charles Moor.*

Immense Flock of Starlings.—Late in the evening of the 19th of March an immense flock of starlings was noticed flying E. by N.E. They seemed to extend as far as one could see both ways, flying in close company and about one hundred and fifty yards high. I mention this, as they are seldom seen in such numbers in this neighbourhood.—*Id.*

Reparation of a maimed Beak in the Chough.—In the 'Zoologist' (S. S. 1015) my father mentions that a tame chough, which had been sent to me from Cornwall,

having broken half an inch off its upper mandible, the beak after a time commenced growing again, until it became as perfect as ever. I am sorry to say this bird died last December. Its mandibles are two inches and a half in length, attenuated at the ends, with the tips slightly crossed, closely resembling one which was at the Zoological Gardens a short time ago.—*J. H. Gurney, jun.*; July 29, 1870.

Swallow taking a Fly from a Horse.—The other day I saw a swallow hover for a second before a horse feeding in a meadow, and take a fly from his shoulder. This may be no unusual occurrence, but I never noticed it before.—*Murray A. Mathew.*

On the Nesting of the Common Swift.—Wishing to add the eggs of the common swift (*Cypselus apus*) to my collection, I went over to Wandsford, a village near Driffeld, in this neighbourhood, where large numbers of these birds breed under the tiles of the high warehouses, &c., and having, with the assistance of two able persons, reared a long ladder against the eaves, I ascended, and was rather surprised to find the old swifts sitting under the tiles in a very stupid manner, but no nest could I find. The birds seemed in no way alarmed by being disturbed, and persistently refused to take flight, even when the tiles were lifted off and the birds moved with the hand. Although the places whereon the birds were sitting were quite warm, there was not the slightest sign of any nest: then what made the birds so stupid? not because it was late in the evening, for there were hundreds flying and screeching in all directions. Now I have often heard, and many people believe, that the swift is unable to rise off the ground: here then was an opportunity of testing the point, so choosing a level piece of ground, I put five or six of them on it one by one, and holding my flat hand over them for a short time I suddenly withdrew it, and the birds in every instance rose with little difficulty and joined their companions circling aloft. On a subsequent visit to the same place I took two nests, one containing two eggs and the other only one; the old birds were on them in each instance, one escaping by creeping out of reach and the other by flight. These nests were very compactly glued together by a strong viscid substance (perhaps saliva) of a whitish transparent colour, and much resembling the gummy material used by the puss moth in forming its cocoon; they were composed of straws, &c., at the bottom, and lined with the black feathers of the rook. During the whole time I was searching about the buildings for nests the swifts were screaming in all directions, when suddenly one would bend its course straight at me, and with a loud scream appear as if it were going to dash itself against my head, but when about a yard off would change its course with the quickness of thought, and speed past me and over the roof with immense velocity: others made feints to enter the holes beneath the tiles, and in some few instances did so for a short time, yet these were the only nests I could find, though no doubt there would be many others. It seems also that they vary a great deal in the time of their commencing to breed, as some nests were only partly completed, whilst the eggs I got were very much incubated: this was on the 28th of June.—*F. Boyes*; *Beverley*, August 20, 1870.

Nesting of the Quail in East Yorkshire.—On the 24th of July last I had the pleasure of finding a quail sitting on eleven eggs near this town: it suffered itself to be approached to within about a foot, and then rose with a sharpish scream, and a quick flight rather resembling that of a snipe. On again visiting the place I found the eggs cold and evidently forsaken. The nest was situated on the side of the railway embankment, amongst grass, &c., and consisted of a very few dead grasses in a hollow (no doubt scraped out by the bird), and seemed too small for the number of

eggs, which were not arranged neatly therein, but some were on the top of the others; all but one contained embryo chicks. The eggs were of the usual yellowish ground colour, blotched with rich umber-brown; one or two of them looked as if the colour had been partly wiped off, like some eggs we find of the grouse species. It would appear that the quail is a late breeder, as it not unfrequently happens that the eggs are found when reaping the corn in harvest, and I scarcely think they are all addled ones. In this instance had the young hatched out safely they would have been in a very helpless condition by the 1st of September, the red-letter day of the English sportsman, and seeing that the corn will be all cut, and no doubt the last "harvest home" sung by then, it seems to me difficult to conceive how they (deprived of all shelter) could have escaped destruction and migrated safely from our shores.—*F. Boyes.*

Quails Nesting at Witnesham and Westleton.—A quail's nest containing ten eggs was found by some labourers while cutting grass at Witnesham, Suffolk; and a second nest, a few days previously, containing eggs, at Westleton. The nest of this bird is very unusual in this part of Suffolk.—*E. Charles Moor.*

Little Egret in Devonshire.—I have just had the pleasure of seeing, at the house of Mr. Adkins, bird preserver, South Street, Exeter, a beautiful specimen of the little egret, killed on the 3rd of June last, at Countess Weir, on the River Exe. It is in perfectly adult plumage, and belongs to Mr. E. H. Harbottle, of Topsham, near Exeter. I also saw the note sent with the bird from Mr. Harbottle, requesting it to be preserved.—*J. Gatcombe; Stonehouse, Plymouth, August 2, 1870.*

Little Bittern in Nottinghamshire.—On or about the 24th of May last a little bittern (*Botaurus minutus*) was shot near Worksop, in the above county: it was a male in fine plumage, and was received here for preservation by Mr. Richardson, taxidermist, by whose kindness I was enabled to add the sternum and trachea to my collection.—*F. Boyes.*

Common Tern in Oxfordshire.—On the 7th of August, whilst rowing between Henley and Wargrave, a common tern, evidently a bird of the year, kept flying and hovering over the water, and passed so close to the boat that I nearly succeeded in striking it with the oar as it flew by. The wind was blowing strongly at the time up stream.—*A. H. Smee; August 14, 1870.*

Arrival of Spring Migrants.—Willow wren, first seen, April 7th; wryneck, 8th; redstart, 9th; chiffchaff, 13th; nightingale, 13th; blackcap and swallow, 14th; cuckoo, 18th; lesser whitethroat, 20th; whitethroat, 21st; tree lark, 21st; turtle dove, 21st; sand martin, 22nd; wheatear, 23rd; garden warbler, 30th; butcher bird, May 12th; flycatcher, 15th; swift, 16th; house martin, 17th.—*E. C. Moor.*

Sharks off the Cornish Coast.—When out fishing yesterday, about three miles off Towan Head, we captured a blue shark, which measured four feet in length, being about one year old. On examining it we were much surprised to find three letters, "U N F," branded on its left side, under the back fin. From the inside of which we took a pilchard, measuring nine inches in length. Two other sharks were also captured, one of the common, the other of the blue species, which are considered scarce along this coast: several dog-fish were also seen by us during the day, which I need not add greatly interfered with our fishing arrangements.—*Frederick Newton; Beaucliffe House, Newquay, Cornwall, August 9, 1870.*

NOTICES OF NEW BOOKS.

'Travels of a Naturalist in Japan and Manchuria.' By ARTHUR ADAMS, F.L.S., Staff-Surgeon, R.N. Hurst & Blackett. 1870. 334 pp. Demy 8vo.

(FIRST NOTICE.)

PLEASANT it is, very pleasant indeed, to fancy oneself standing on the deck of a good ship as she dances joyously over the waters of the "deep and dark blue ocean"—"borne like its bubbles onwards." Pleasant it is, there to enjoy the companionship of one we have met in days of yore, in that literary career in which there is no turning back: once set in successfully, it is a tide that knows no ebb, but flows on and on, until the hand is weary with the labour and the eye is dim with age: how truly has the wisest of men declared, "of making many books there is no end." Many who were once familiar with Mr. Adams as a contributor to the 'Zoologist' may possibly have feared that his "right hand had forgot her cunning," and could hold the pen no more: I well knew how groundless was this fear; I well knew that the spirit of the voyager had undergone no change, and that his powers of description were as great as when he first delighted us with his life-like sketches of Nature's handiwork. Let us accompany him on board the "Actæon," sail where he sails, land where he lands, admire what he admires, and lend a willing ear to all he has to say. He knows what to observe and how to observe. "When traversing the great oceans, besides keeping the towing-net always going whenever the ship is not sailing too fast, and whenever the weather is favourable, he always notes down on a track-chart every species of bird, fish, or mollusk he happens to see. If all naturalists did the same on their voyages, our knowledge of the geographical distribution of marine life would be greatly extended and improved."

He sails from the Land's End, glances, and nothing more, at Funchall, and anchors in the harbour of Rio, the most magnificent in the world, but sadly misnamed, for it is a land-locked bay, of unparalleled beauty indeed, but not the mouth of a river; hence to the Cape of Good Hope, where he abandons himself to his besetting sin, a weakness for beetles; sails to the Straits of Sunda, that "Gate of the East" which opens between Sumatra and Java; shoots pigs in Thwart-the-way island; and at Krakatua Island he watches the

screaming cockatoos as they fly in circles high up in the blue empyrean; away to the north, he lands on Pratas Shoal, in the Chinese Sea, and anchors at Canton; visits Shang-tung and Pei-ho; ascends the great wall of China; "does" the Korea, so seldom "done" by Europeans since Hamel was there in 1653; passes through the Korean Strait; up, up, to the polynymic Island of Saghalen, where he scrapes acquaintance with the Ainos, "the Aborigines of the island;" is driven by a tempest through La Perouse Strait into the Sea of Okhotsk; botanises at Hakodadi; doats on beautiful Tsu-Sima; shoots Diant's pheasant on Sadi, or rather relates how Lieutenant Warren shot them, while he, the doctor, was "mooning about as usual" after beetles; joins the squid-fishers at Nisi-Bama; compares the cemetery at Nagasaki with that at Kensal Green, greatly to the advantage of the former; and finally fraternises with the Japanese; his Ultima Thule seeming to be Saghaleen. This is something like a trip; I commend it especially to the notice of Mr. Cook when he has exhausted Palestine and the Nile.

Such a traveller as Mr. Adams finds objects of interest everywhere: when on the sea nothing escapes his notice, not even the everlasting flying-fish (that snare of the book-maker and bugbear of the reader): he makes amusing capital even out of so stale and trite a subject, and observes, "When, as not unfrequently happens, the poor creature flies on board exhausted, it is picked up from the deck, and the 'clever one' who secures the prize, holds it in his hand and delivers a profound discourse on its habits and peculiarities to the listening crew." This is perhaps the first, as it may be the last time, this "exhausted" phenomenon has been made a subject for pleasantry. But let us land and accompany our author on one of his beetling excursions in St. Simon's Bay, at the Cape. It is refreshing to one, who, like myself, has outlived the ardour of collecting to observe the zeal with which Mr. Adams still enters on the pursuit, even while indulging a good-humoured smile at the enthusiasm of poor old Turner,—"now" alas "no more,"—and at that prince of all beetle-hunters, my friend Dr. Power, who is still amongst us, inspiring the young by his example, and comforting the old by unchanging kindness. Here is a glimpse of Turner: "This reminded me of another great hunt for an emerald beetle, *Drypta emarginata*, with old Turner, a poor, but far-famed and eccentric collector of insects, now no more, in Hampshire, at pretty Alverstoke. In vain we toiled and tore up the grassy bank, the old man growling and swearing in a deep

undertone at *Anchomenus prasinus*, another green but common beetle, which was always running about and giving him false hopes. At length he found a veritable Drypta. Drawing a long breath, he exclaimed, this time aloud, and with a jubilant expression, 'Glory! glory! glory! I got 'un!'" His incidental mention of Dr. Power is in this wise. "Some 'innocent' not yet versed in the deep mysteries of beetle-lore, and not inured to the toils of beetle-hunting, who may never have seen, as I have, the indefatigable Doctor Power on his stomach in a ditch, spectacles on nose, and the perspiration streaming down his cheeks with his fossorial exertions, may imagine that because I have some thousand beetles nicely carded in my store-box, I have had no trouble but to pick them up. I can tell that complacent know-nothing that he is quite mistaken." But adieu to England and English beetle-hunting; we have crossed the boisterous Atlantic from Rio and have landed at the Cape of Good Hope.

"Ground beetles were our game. Our fair readers must picture us, covered with sand, toiling among the loose stones at the base of the mountain, turning them over to see what there was beneath. We took some very fine prizes, named *Anthiæ*, some of which were large and black, some small and white-spotted.

"Here also we discovered a goodly store of sand-beetles and burrowing shore-beetles. In the gulleys, in the kloffs and small ravines, in the humid neighbourhood of streams and water-courses, mud-burrowing and marsh-beetles, together with a lily-beetle and a few snout-beetles, turned up and rewarded our patient assiduity. The Kaffir herdsman regarded us on this sultry day with special wonder, for while, crouched motionless under the shadiest bush he could find he watched his browsing buffaloes, lo! we were toiling and moiling in the sun, and after all our exertions finding nothing which he appeared to regard as food; hence his amazement. On our way back we captured a few stragglers, among them some elongated bark-beetles under the bark of a hollow tree near a pretty cottage on the hill-side, where we gathered delicious mushrooms. A fine diving beetle was taken in a cattle-pond; a mimic flower beetle and a shard-beetle were captured promenading a sheep-walk. By the sides of a sandy road much used by buffaloes we came upon a large sable sacred-beetle busily employed, like Sisyphus, in rolling up-hill earthen balls containing his little ones, which, as often as not, when pushed along with his crooked legs nearly to the top of the bank, came rolling down

again. On the third day we proceeded to Millar's Point along the coast, and the special object of our mission was (start not, gentle reader) carrion beetles! We pursued an uneven course up sand-hills and down sand-dales until we espied a huge boulder rock covered with the trailing stems and fleshy leaves of the yellow *Mesembryanthemum*, or fig-marigold. The green carpet was torn off from the surface of the stone, when out ran the rove-beetles, large-eyed, burrowing and broad-bodied. At the same time the little pale scorpions dropped down, while the nimble yellow centipedes vanished mysteriously, with that unpleasant wriggling movement peculiar to hundred-legs and snakes.

“About two miles to the left of Simon's Town we crossed a plain where the grass struggled for existence with the sand, and where the round green gourds of the colocynth rested upon the ground like shot strewing the surface of a battle-field. A thousand foot-prints of horses stamped in the moist sand (for the ground is used for breaking-in horses) heightened the resemblance. On a sudden a taint in the pure air offended our nostrils, but we knew what it meant, and, like the vulture to his carrion meal, we were led by the nose to the carcass of a sheep; Placing our nobility to windward we capsized the defunct mutton, and those useful scavengers of nature, the burying beetles and the carrion beetles rewarded our bold adventure.”—P. 34.

In the same favoured and favourite locality, or very near it, we pause to learn something of the fish, but even the fish seem to have been as attractive to beetles as beetles were to our author: he does not indeed mention the species, but it must have been one of the genus *Brachinus*.

“On our return we descended the sand-hills near the sea, and by the ‘ancient and fish-like smell’ we became aware of the vicinity of a station for cleaning and drying fish. Here were fish galore. Fish salted in great tubs; fish lying in heaps upon the ground; fish by cart-loads; fish by boat-loads; fish split open on long tables; fish covering all the rocks outside; fish by thousands drying on poles;—stacks of fish! We raised a casual board, and behold! the ground was alive with bombardier[beetles, and there was an irregular salvo as in alarm they discharged their mimic guns! The long stretch of flat sandy shore between Simon's Town and Fish-hook Bay was a favourite walk of mine, fresh, breezy and full of interest. The weather had been very stormy of late, and as I strolled leisurely along ‘the beeched margent of the sea’ I stumbled across a stranded fiddle-fish with a

head like a ray and a tail like a shark. The shore was strewn with many other remnants of fish, crab and cuttle, to which various fatal casualties had occurred. Among these we observed an entire flotilla of *Ianthinas*, or violet sea-snails, which had suffered shipwreck despite the buoyant floats with which each tiny vessel has been provided by Nature. Now, however, the scene was very peaceful. Out at sea only two little boats were visible, fishing for snook (a kind of long-nosed mackerel), between Noah's Ark and the Roman Rocks. The long rolling breakers came tumbling in with a deep and hollow roar, and on the huge bare rocks along one portion of the shore sat the cormorants drying their dusky wings, or sitting upright, motionless, like learned doctors met in solemn conclave. Near them were foolish penguins, gorged with fish, dozing in the fitful sun gleams. Three skulls of the 'right whale' were bleaching on the sand, and the eye of the great sea-eagle watched us from above."—P. 38.

I would here bid adieu to the Cape, but there is another little bit of Natural History, so prettily told and affording so pleasant a contrast to unclean carrion beetles and odoriferous fish, that I cannot forbear making the extract.

"During our brief sojourn at the Cape I was greatly interested in the way in which Nature provides for the dissemination of the seeds of the splendid silver-tree, the *Leucodendron argenteum* of botanists. The lance-like leaves, the stem, the branches, and even the fruit-cones, are covered with a silky down which glistens in the sun with a silvery sheen, and the mode by which the fruit is dispersed is, as I have said, very curious. The large oval, silvery cone is covered with scales, which being recurved by the heat, the ripe fruit or seed is suddenly cast forth with a little click. It does not fall at once however to the ground, but is borne up by a beautiful contrivance. The fruit is enclosed in a thin amber-coloured capsule or case, surmounted by a crown composed of four feathery shafts, which radiate upwards, but are united at their bases to form a sheath for the pistil. When the ripe fruit is ejected from the cone it bursts the membranous envelope which holds it, and when released falls about an inch and remains suspended by the stigma, which forms a sort of knot, thus at the same time balancing the tiny parachute, and by its mode of suspension forming a beautiful provision to take off the weight of the parachute when the seed strikes the ground."—P. 40.

The next place of interest is Anger, in the mainland of Java: here the Javanese were offering for sale their multifarious wares; in one place a hideous baboon sat munching a banana and watching with mischievously twinkling eyes every movement of those around. Lots of minor monkeys were grinning, chattering, and either quarrelling among themselves or stealing everything within their reach; lories and love-birds; squirrels and Java sparrows; water-tortoises and pythons; civet cats and chevrotins; intermixed with yams and coconuts, pine-apples, bananas and shaddocks. Here the epicure might provide himself with the finest fruits, here the naturalist might select the choicest animals. Our traveller, leaving this mercantile station, ventured a little way into the neighbouring jungle to satisfy his curiosity and to collect beetles: the thermometer stood at 90° in the shade, and oppressed by heat and thirst he stooped to drink at a trickling rivulet, when he saw under his very nose an object that made him start, the fresh imprint of a tiger paw so large that his outspread hand could only just cover it. He afterwards learned that two of the neighbouring villages had just been depopulated by these formidable animals. Mr. Adams took pains in the course of the wandering to obtain some statistics as to the northern range of the tiger. Atkinson says it has been killed in Siberia, having crossed the Kirghis Steppe into the Altai mountains; and Mr. Adams found them tolerably abundant, and the skins very cheap, at Lias-ho, in the province of Liau-tung in Manchuria. In this temperate climate the skin of the tiger is warmer and more woolly than in the hotter climate of India: they are obtained in this way: the Manchu Tartar digs a wide deep ditch of a circular form, leaving a little island, as it were, in the middle, in which he stations himself as a bait. The ditch is then covered over artfully with brushwood, and the tiger, perceiving the man, makes a spring, and falling short is impaled on spears placed ready to receive him, or shot by the hunter. I cannot say that I much envy either the tiger under such unpleasant surroundings or the hunter who serves as live bait.

In different places two of that singular animal the pangolin came under the notice of the traveller, and as I suppose few of my readers have enjoyed an opportunity of seeing the living animal I think the doctor's portraiture drawn from the life can scarcely be unacceptable: so here it is.

“Two living specimens of the scaly ant-cater (*Manis javanica*),

having come under my notice, some account of its habits, as far as I was enabled to make them out, may be acceptable. The first was a female, and rejoicing in the soubriquet of 'Scales.' She was crepuscular, and remained coiled up in a ball during the day, secure in her scaly panoply. At the approach of night, however, she grew lively. A creature whose habits require to be studied by the aid of a dark lantern, must needs be interesting even to the most incurious observer; and a lizard-like mammal, whose every movement and attitude is probably a living illustration of those great extinct quadrupeds which once peopled the earth before man was created, must surely have the power of arresting the attention, if not of stimulating the imagination, of all who desire to penetrate the secrets of Nature. I doubt not Professor Owen would have lain prone on his stomach all the livelong night to watch the evolutions of this gnome-like mountaineer, in whose aspect, as she prowled about at night, there was something old-world and weird-like. The Scotch would say she had an 'uncanny' look; and truly, if but ten times bigger, she would unmistakably have reminded one of the times before the deluge. When she walked, she trod gingerly on the bent-under claws of her fore feet, and more firmly on the palms of her hind feet. A very favourite attitude with her was that assumed by her gigantic extinct analogue, the *Mylodon*, as seen in the wondrous model of Waterhouse Hawkins in the gardens of the Crystal Palace. The fore feet in my 'Madam Scales' were raised: and the animal was supported by the strong hind limbs, and the firm, flattened, powerful, muscular tail, the head and body being at the same time moved from side to side, and the little round prominent eyes peering cautiously about in every direction. In walking the fourth toe of the hind foot was also extended. The Chinese, in their sly manner, said that she pretended to be very quiet, but 'spose no man lookee,' she run very fast. She was certainly of an exceedingly timid and retiring disposition, tucking in her head between her fore-legs on the least alarm. So apathetic a quadruped appeared our 'Pangolin' (for so was she called by the Malays) that, coiled up in a strong net, I considered her properly secured, and carefully deposited her in my cabin. No sooner, however, had the last gleam of light vanished from my little 'scuttle,' than she knew the period of her lethargy had expired, and, bursting the trammels of her hempen toil, she roamed abroad. The first intimation I had of her escape was the ominous bark of Master 'Wouff,' a clever little terrier on board. The dog, puzzled by the queer scaly rat he had suddenly encountered,

regarded with impotent rage the lizard-like intruder, while 'Scales,' secure in her coat of mail, bid defiance to the attacks of her canine assailant. The scaly ant-eater is called by the Chinese of Quang-tung 'Chun-shau-câp,' which literally means 'Scaly hill-borer.' They also name it 'Ling-li,' or 'Hill-carp.' It seems to be regarded by them as truly 'a fish out of water,' though it lives in the sides of the great mountains. They say it lays a trap for insects by erecting its scales, which suddenly closing on the entrance of flies, ants, &c., these intruders are secured, and when dead, fall out and are eaten. It is also said to feed upon fish, but both these stories appear to be myths, something similar to those told of our own familiar 'hedge-pig' sucking the teats of cows, and impaling apples on her quills in the orchards. The *Manis javanica* is sold in the markets of Canton, and is often carried about the streets as a curiosity. The scales are employed by the Chinese for medicinal purposes; but the flesh does not appear to be eaten, though it is very excellent food when roasted, as I can testify from personal experience, having had a portion of the defunct 'Scales' cooked. The *Manis* climbs very well, and can suspend itself head downwards by means of its strong flat tail. We fed our 'Scaly hill-borers' on raw eggs and chopped raw beef, on which they seemed to thrive. The unfortunate 'Scales' fell a victim to female curiosity. Exploring the hold of the ship in one of her midnight rambles, she was lost for a time, and though she at length found her way back to her box, she was so exhausted by long abstinence that she died of starvation."—P. 79.

One of the most interesting, though at the same time most heart-rending, discoveries made by Mr. Adams in China was that the chrysalids of a *Bombyx* were collected to fatten ducks! think of this O shades of Tseu-kwang-k'he and Hawae-nan-tsze! Think of this ye merchant entomologists who have acquired "the potentiality of accumulating wealth beyond the utmost dreams of man's ambition," by "introducing" the Joree, the Deo-mooga, the Tusseh, the Bughy, the Kolisurra, the Munga, the Moonga, the Konkuri Mooga, and other silk-worms, and by "acclimatizing" the Addakoory, the Champa, the Soorn, the Kontooloa, the Digluttee, the Pattee Shoonda, the Souhalloo, and the hundred other trees which support these inestimable treasures; think I say of a wretched Chinaman prowling about with a little sickle at the end of a long bamboo for the purpose of collecting the chrysalids of the Konkuri Mooga from the boughs

of a Pattee Shoonda for the ignoble purpose of fattening ducks! and then imagine the same Chinaman "adding insult to injury" by imitating a duck in the act of gobbling the priceless pupæ. But the subject is too painful, and I forbear. Mr. Adams himself, after announcing the astounding fact, thinks it wise to tone down his communication by retiring gracefully amongst the flowers of *Anthyllis*, *Veronica* and *Stellaria*. Here is a portrait of the pupa-gatherer.

"Turning my eye in one direction, I perceived an individual with basket on arm, surveying the willows with inquiring eye. I was curious to know on what he was intent, and observed his motions. By means of a little sickle at the end of a long bamboo, he ever and anon detached brown swinging cradles from the slender boughs, and deposited them in his basket. I learned from himself that he was a pupa-gatherer, and that those mummy-like objects of his solicitude were the pupa-cases of a species of moth. When I humbly desired to know the use to which these accumulated grubs were to be put, the face of the old man relaxed into a smile, and he did his best to assume the appearance of a duck gobbling up imaginary fat grubs with impatient greediness and noise. From this pantomime I gathered that he was collecting food for his ducks; for this is one of the several ways they have of fattening ducks in China. In the beginning of summer, when the *Principia utilis*, which in winter time is nothing but a tangled mass of green thorns, teems with milk-white flowers, and swarms with bees; when the edges of the narrow paths are gay with the white and pink coronals of *Anthyllis*, about which wasps are flying, vigilant and bustling; when in all waste places the blue flowers of *Veronica* mingle with the milk-white stars of *Stellaria*, and in the far distance a puce-coloured mass of peach blossoms contrasts with the green willows; when those long-beaked hairy flies, the *Bombylii*, hover over the hot narrow paths, like so many lilliputian humming birds, and yellow-legged bees settle on the sun-bright spots,—then you are startled in your walks by strange guttural noises which seem to come from beneath your feet, but which in reality proceed from the iris leaves that margin the river's brink. There, moored in some secluded shallow spot, is seen a long-roofed boat, shaped like Noah's Ark, with a sloping board leading into the reeds and sedges. A little boy watches all day long his greedy charges, keeping them in order by means of a slender wand, with a bit of rag at the end. At day-break down swarm the ducks into the frog-peopled swamp, and at

sunset they are driven back, and waddle up the ladder by which they gain access to their roosting place.”—P. 86.

The Chinaman is fond of fat ducks, and ducks are fond of fat frogs, and for the same reason—both frogs and ducks are wholesome esculents. Towards evening the frogs are in full activity and full song; they leap down the banks of the dykes by thousands, and plunging in the water commence their serenade; the men and boys attracted by the music, or rather *apprised* by the music of their whereabouts, prepare the bamboo, the string, the crooked pin, and the worm, and angle as it would seem very successfully for the musical Batrachia. Mr. Adams tells us he often fell in with an old man bending under the weight of a hamper of frogs, the produce of his evening's fishing. In like manner do the pig-tailed inhabitants of the “Flowery Land” disport themselves in the mud in search of the fresh-water crab with the woollen hand (*Eriocheir japonicus*): these are a much approved dainty with the Chinese, and are tied on a string and exposed for sale in the market-place in every town. As we become better acquainted with the “Celestial” inhabitants of the “Flowery Land,” as proximity removes that impression of vague grandeur which distance always imparts, we begin to perceive that the Chinaman is very human, although we may still continue to admire his skill in horticulture, his wonderful organ of constructiveness, and his indomitable persistency. The chrysalids have led me to the ducks, the ducks to the frogs, and the frogs to the Chinaman; and thus I have been induced to improve the occasion by endeavouring to reconcile my fellow countrymen to their position in a land that is not “flowery,” and conditions that cannot be called “celestial.” Let me now glance at the mina-bird, an indweller of the east, well known to us by name.

“As for the mina-bird, he is everywhere: as you pass through the settlement, a loud cheery note salutes your ear, and on looking about to thank the feathered vocalist, you see, perched upon the cornice of the tallest house, a mina, solitary, but apparently on good terms with himself, piping at intervals in the fullness of his joy. While the old women are sitting in groups before their doors, busy with their spinning and their cotton-pods, the mina-birds dispute the crumbs with the ducks and the fowls. Among the buffaloes in the marsh by the river's brink, familiar and noisy, they gather in little flocks, perching on the heads and backs of their flat-horned, mud-covered

companions, or refresh themselves by making short excursions to the adjacent homesteads. From the bamboo and fir-tree plantations, which make the temples so picturesque, issue forth their clear, sweet notes, mingled with the impudent 'quirk, quirk' of the magpie, the harsh screech of the longtailed butcher-bird, the noisy chatter of the blue jay, and the familiar chirp of the homely sparrow."—P. 93.

Here follows a pretty picture of Haileu, the "Alceste Island" of voyagers: the painter might perhaps have been excused had he omitted the "blue rock-pigeon perched on a slender graceful spray waving in the wind;" not because of the danger to the pigeon, but because such an acrobatic deviation from his ordinary staid proceedings ought not to be recorded against a bird pre-eminently fond of the safe footing which solid rock affords.

"On the rocks above water which form a portion of the reef that extends about a mile round the island, lie huddled together numbers of seals, which, on our approach in the boat, all tumble off into the water. The fishing cormorant evidently thinks these rocks an eligible station, and from them the captain, as he pulled ashore in his galley, shot a beautiful white spoonbill with a lemon-coloured crest. Geese, ducks and gulls are congregated together here in goodly numbers. The blue rock-pigeon appears to have regularly taken possession of, and to have colonized, 'Haileu,' which is the proper Chinese name of the island. The number and variety of other birds which make it their dwelling-place is remarkable: swallows build in the caves which are hollowed out in parts of the huge trachyte cliffs, and here and there, on a giant pinnacle, is found a secure eyrie for the eagle and the kite. In the chasms of the deep precipices, where the sun glints on vast surfaces of shining silvery micaceous schist, on narrow ledges of white gleaming trachyte, and on the black, frowning, weather-stained, lichen-spotted masses which overhang the little bays, are seen blue rock-pigeons walking about, cooing, bowing to each other, and daintily preening their feathers. One is quietly perched on a slender graceful spray, which waves in the wind from one of the fissures half-way down a perpendicular wall of rock many hundred feet in descent; while others near the top seem to be paying each other polite attentions on green carpets fragrant with the scent of wild blossoming thyme. Hundreds fly out from the side of the cliff on the report of a gun, and after a short excursion return again to the security of their rocky homes. A brown owl maintains her 'ancient solitary reign' in

the secret recesses. Numbers of pretty hoopoes are flitting about in their peculiar jaunty manner, raising and depressing their crests, and archly coquetting with one another. Large kites and hawks, of which I have observed two species, sail, poised on outspread wings, high above the island; linnets utter their short pleasing notes as they rise in clouds; and a quail is shot in the high grass at the summit.”—P. 99.

The ‘Zoologist’ used to be celebrated for its advocacy of the sea-serpent, and elicited a vast amount of learned reasoning to show that such things could not be. Mr. Adams adds his contribution on the same side, and shows us that he was actually on the point of shooting with a revolver the root of a tree “gnarled and twisted and secured to the moorings of a fishing-net.” Thus did Mr. Rigby frequently prove political events had not occurred; and thus even while I am writing does a sagacious politician establish in the most satisfactory manner that the *Secret Treaty* was a hoax because not written in that English-school-girl French to which he was accustomed; and thus in a vein of exquisite satire did Archbishop Whateley raise historic doubts of the existence of the first Napoleon; but if we have no saurians in the ocean we have certainly fishes which may reasonably be mistaken for them, as we shall see.

“Any particulars concerning ophiod fisher will I am sure be welcome; and have I not a right to speak about snake-fishes? Did I not capture, in the middle of the South Atlantic, a fish which if it had measured fourteen feet instead of fourteen inches, would have created far more astonishment than the *Regalecus Joesii* of Newman? My fish, *Nemichthys scolopacea* of Richardson, taken in the towing-net, and even now without a place in the ichthyological system, much more resembled a sea-serpent than *Regalecus*. It was scaleless, and had sharp pointed teeth, inclined backwards like those of a serpent. The body was ophiod and spotted on the sides; the eye was large and conspicuous; the jaws were very long, the gape was wide; and the back was furnished with a series of rays which extended, crest-like, from the nape to the end of the tail, which had no caudal fin.”—P. 103.

This portrait will surely convince the most sceptical reader that, amongst the untold monsters of the ocean, fishes may exist that so closely resemble serpents that a seaman, who does not profess to be a

naturalist, might well be forgiven for not knowing the distinction. One word more, let us never put in the mouths or minds of those who differ from ourselves words they have not uttered or sentiments they have not expressed. An author of the highest reputation argues that no saurian could exist in the ocean, and so as he supposes ends the controversy: let me remind him, in the first place, that no seaman has called it a saurian; in the second place, that if we translate serpent into the language of Science it means "ophidian," not "saurian;" and thirdly, that although an accomplished naturalist like himself or like Mr. Adams, might reasonably be supposed liable to mistake the root of a tree for a snake, such a latitude cannot be allowed to the practised mariner whose home is on waters, and to whom such objects are as familiar as the albatross or the petrel, the porpoise or the whale, and whose eyes are trained by constant practice to estimate every object at its proper value.

EDWARD NEWMAN.

A List of the Birds of Cornwall. By EDWARD HEARLE RODD, Esq.
(Concluded from Zool. S. S. 2280).

Sandwich Tern.—A few pairs observed in the summer months on some of the islands at Scilly, where they annually breed: found sparingly on the Land's End coast.

Roseate Tern.—Abundant in summer at Scilly: breeds on Annet, a Scilly rock, and some other localities near. The bird exhibits in summer a most delicate hectic glowing blush-red on the throat, breast, and belly, which is more or less evanescent in some lights. The egg of the roseate tern is generally less blotched and more elongated than that of the arctic tern.

Common Tern.—More or less common in the summer in Mount's Bay, approaching nearer the shore in windy weather: less abundant at Scilly than the roseate or arctic terns, but it breeds annually there. The breast of the common tern in summer is of a glossy pearl-gray, sometimes approaching to nearly white: the base of the bill more scarlet-red than that of the arctic tern, which is shorter and coral-red throughout.

Arctic Tern.—A common species in summer both on our coast and at Scilly, at which latter locality its eggs may be obtained every year. In some seasons various parts of England are visited with large flights of these birds. The breast of the arctic tern is of a bluish and deep gray, as distinguished from that of the common tern.

Whiskered Tern.—An immature specimen obtained in the month of September, 1851, at Scilly: a rare and newly-discovered British bird; first included in the catalogue of British birds in 1836; little is known of its habits: observed in France, Hungary and Germany.

Gullbilled Tern.—A few examples only have been captured in England: there is one in a private collection at Penzance, presented by the Rev. Mr. Rice, of South Hill, together with a portion of the egg, which dropped when he shot the bird, near Brighton. In the latter part of May or beginning of June, 1852, an adult specimen was shot at Scilly by the Rev. John Jenkinson, which was submitted to my inspection: this species may therefore be added to the Cornish Fauna.

Lesser Tern.—Several examples of this small tern have been obtained close by the town of Penzance: not observed in summer at Scilly.

Black Tern.—Generally observed in the autumnal months, and nearly every year, in larger or smaller numbers, on the sea-side and inland. In its full black plumage it is rarely met with in Cornwall.

Sabine's Gull.—Rare: occasionally obtained in winter in its immature plumage. This bird has been mistaken for the little gull, but in its young state it may be known by the absence of black in the wing, by the greater length and slenderness of the beak, and by the tail being *deeply forked*; Mr. Selby, however, has erroneously described the tail of the little gull as *forked*. Both this species and the little gull assume black on the head and neck in the spring months.

Little Gull.—Rarely met with, but specimens in adult and immature plumage have been obtained at Penzance and the Land's End, the latter in the month of December, 1844. The young bird has a broad black bar on the wing somewhat resembling the immature kittiwake; bill stronger and more arcuated than the last-named species: tail with a black tip, and *square*. (See Sabine's gull.)

[One of the striking features of last winter's Ornithology was the extraordinary abundance of the little gull on our coasts.—*E. N.*]

Blackheaded Gull.—Not uncommon on the sands at Hayle, in winter, and occasionally remaining on till the summer plumage is assumed: specimens in both states of plumage obtained.

Kittiwake.—Common on our coasts generally; the birds of the year have two black bars on the wing, which is not the case with the other common gulls. The kittiwake breeds in large numbers at Scilly.

Ivory Gull.—Very rare: the only recorded example of this bird in

Cornwall was captured off the pier at Penzance, in the month of February, 1847, and the following note was taken at the time and reported in the 'Zoologist':—Observed for some days previously associated with sea mews and herring gulls; alighted several times on the New pier, Battery rocks, &c., apparently not shy; note of the bird described as being like the warbling whistle of oystercatchers, the reverse of harsh and grating,—this peculiarity attracted the notice of men and boys at the quay, who are used to the screaming and clamorous cries of the common gulls. Length $17\frac{1}{2}$ inches. Plumage studded with well-defined dusky-brown spots, some more obscure than others. (Abridged from the 'Zoologist.' See vol. for 1847, p. 1699).

Common Gull.—Generally distributed in larger or smaller numbers along our coasts.

Bonapartian Gull.—(See Yarrell's 2nd 'Supplement,' p. 55). An immature specimen killed in Falmouth Harbour, in June, 1865.

Cuneatetailed Gull.—(See Yarrell's 2nd 'Supplement,' p. 59).

Lesser Blackbacked Gull.—Generally distributed, and seen associated with the herring gulls in large numbers on our flat sands and open estuaries. Hayle, Marazion sands, &c.

Herring Gull.—The most common gull on our coast, and generally distributed in estuaries, creeks, open sands, and precipitous cliffs. There is no distinguishable difference between the egg of the herring gull and that of the lesser blackbacked gull.

Great Blackbacked Gull.—One or two may be seen, at all times and seasons, in different localities along our coast, frequenting rugged rocks and sometimes open beaches; generally seen singly, or in pairs. Hayle sands; Marazion sands; Land's End; Scilly Isles.

Glaucous Gull.—Occasionally observed, but by no means regularly or frequently. This bird, together with the Iceland gull (its smaller congener), may be known by the tips of the wings being white, which in the other species, excepting the ivory gull, are black.

Iceland Gull.—Rare: a specimen of the Iceland gull in the state of plumage almost amounting to pure white, with occasional brocoli-brown markings, was killed at Scilly: the inner or smaller webs of the quill-feathers were light brown, but the general appearance of the bird at a short distance was of an uniform dull white.

Common Skua.—Rarely met with in the western counties: observed at the Wolf Rock in considerable numbers in 1863.

Pomarine Skua.—Occasionally, and at uncertain intervals, occurring

on our coast, and in every instance in immature plumage: specimens obtained from Mount's Bay.

Richardson's Skua.—Rarely observed on our coasts, and still more rarely in adult plumage. The figure in Bewick of the arctic gull is this species in adult plumage.

Buffon's Skua.—Very rare: a specimen found inland in the parish of St. Buryan, in adult plumage, is now in a private collection of birds in Penzance. (See note as to the possible existence of another small species of skua, in the 'Zoologist,' p. 7758).

[So very little was known of this species by Montagu, Bewick, Selby and Yarrell, that I may perhaps be excused for introducing a passage from Mr. Wheelwright, showing how well he was acquainted with its breeding habits and food; prefixing a brief but elegant passage from Wilson on the necessity of actual personal study of birds in preference to the all but universal plan of trusting to book knowledge: Mr. Wheelwright is an illustrious example of carrying out Wilson's views.

"The changes of plumage to which birds of this genus are subject have tended not a little to confound the naturalist, and a considerable collision of opinion, arising from an imperfect acquaintance with the living object, has been the result. To investigate thoroughly their history it is obviously necessary that the ornithologist should frequently explore their natural haunts; and to determine the species of occasional or periodical visitors, an accurate comparative examination of many specimens, alive or recently killed, is indispensable. Less confusion would arise among authors if they would occasionally abandon their accustomed walks, their studies and their museums, and seek correct knowledge in the only place where it is to be obtained, in the grand temple of Nature."—*Wilson*.

"Owing, as it was supposed up here, to the quantity of lemmings which swarm in these fells this summer, the Buffon's skuas were unusually numerous in this neighbourhood, and from first to last I obtained more than thirty specimens of old birds, besides many eggs and some young. But from all I could hear this was a very unusual occurrence, and years may elapse before they will appear again in such numbers in these fells, although a year never passes without some being seen. It appears, therefore, that the northern stretch of this large fell range is the summer home of this skua, which in winter is occasionally met with as far south as the British Channel. We got our first nest on the 3rd of June, and continued to take fresh eggs

until the end of the month. I never but in one instance saw more than two eggs in a nest. Once I obtained *three*, and as I have taken a single egg from a nest hard sat on, it appears they do not always lay *two*, which, however, we may take to be the general number. The nest is nothing more than a few pieces of dried hay laid in a hole scratched in the ground, always in the vicinity of water, and I never saw it on a real snow fell. Although these birds live in colonies, you do not find the nests close together. None breed close to Quickiock, but in the fells about thirty miles to the west they breed in great quantities. No bird is more tame or fearless than the skua during the time they have eggs, for they come sailing close over your head when searching for the nest, performing the most beautiful airy gyrations, their long sharp wings and pointed tail giving them a single and pretty appearance when in the air. * * * Their principal food appears to be the common crowberry (*Empetrum nigrum*), a large beetle, and small Crustacea. I never saw anything except crowsberries in the inside of young ones.”—*Spring and Summer in Lapland*, p. 357.]

Greater Shearwater.—Occasionally seen, and specimens obtained from Mount’s Bay; well known at Scilly, where it goes by the name of “hackbolt.”

Manx Shearwater.—Well known at Scilly, where it annually breeds in rabbit-holes,—known there by the name of “coccathrodon.” See an interesting account of this species in Yarrell’s ‘British Birds,’ vol. iii., p. 509, from the pen of Mr. D. W. Mitchell, formerly of this town, and afterwards Secretary to the Zoological Society of London, Egg glossy, pure white.

Fulmar Petrel.—Very rarely observed in the South of England: one specimen taken alive at the Land’s End, and another reported to have been captured in Mount’s Bay.

Wilson’s Petrel.—One specimen only obtained from Cornwall, and this was found dead in a field near Polperro; it passed into the hands of Mr. Couch, who forwarded it to Mr. Yarrell, whose figure of this bird was taken from the Cornish specimen.

Forktailed Petrel.—Several specimens of this small petrel have from time to time been obtained on our coasts, and it is not uncommonly met with very far inland, generally dead or in an exhausted state.

Storm Petrel.—Of frequent occurrence in the summer months, and observed at a distance of five or six miles out in Mount’s Bay, sometimes in small flocks, in fine summer evenings at sunset, flying and

hawking about in pursuit of small insects, in the manner of the swallow tribe, sometimes dipping, but seldom alighting on the sea, skimming for a few seconds with open wings, and mounting again in the air: whilst thus engaged, they appear to be wholly regardless of danger, and heedless of man. Abundant at Scilly, where they breed. Egg white, with a rufous zone at the larger end. When the storm petrel alights on ground, it appears incapable of perching or resting on its feet solely; it rests, or rather squats, on the whole length of the tarsus, and in moving hobbles along in this attitude, in the manner of the grebes and divers.

EDWARD HEARLE RODD.

Rare Eggs from North America. By HENRY REEKS, Esq., F.L.S.

THROUGH the kindness of Professor Baird, and the liberality of the Smithsonian Institution at Washington, I have recently received the following rare eggs (with others of less interest) from North America.

Botaurus lentiginosus.—Length 1·85 by 1·45. Colour uniform darkish olive. Taken Ottawa, Canada. No. in Smithsonian Collection 7095. W. T. Coleman.

Gambetta flavipes.—Length 1·65 by 1·15. Colour olive-brown, blotched thickly at the larger end with darker brown of two shades. No. 13385. Taken Fort Anderson, July, 1864. R. McFarlane.

Actiturus bartramius.—Length 1·67 by 1·25. Colour gray, thickly spotted with purplish brown, principally at the larger end, and not so pyriform in shape as the eggs of sandpipers usually are. No. 506. Taken Rock Creek. Wagon Road to Bridger's Pass, Rocky Mountains. K. T., June 8, 1857.

Anser Gambelii.—Length 3·35 by 2·45. Colour soiled white. No. 11752. Taken at Franklin Bay, Anderson River, 1865.

Mareca Americana.—Length 2·15 by 1·45. Colour cream or dirty white. No. 7734. Taken on the Arctic Coast, east of Anderson River.

Fulix affinis, Baird. Length 2·30 by 1·55. Colour pale buff, with olive tinge. No. 6642. Taken Youkon River, June 29th. J. Lockhart.

Somateria spectabilis.—Length varying from 2·50 to 2·65 by 1·70. Colour pale olive-green of various shades; only to be recognized by

their smaller size from some eggs of *S. mollissima* (common eider). No. 12447. Taken Franklin Bay, Anderson River.

Larus atricilla. Length 2·20 by 1·50. Colour pale olive, blotched all over with brown of three shades. No. 6989. Taken Hog Island, Virginia. Dr. Hitz.

I had a difficulty in measuring these eggs, as they were most unfortunately broken *en route*. I shall be happy to lend these for inspection, or to be figured by any naturalists of repute.

HENRY REEKS.

Thruvton, Andover.

Extracts from a Memoir intituled 'A Monograph of the Alcidae.'

By ELLIOTT COUES, A.M., M.D.

(Continued from S. S. 2296).

Genus BRACHYRHAMPHUS, *Brandt*.

With the general habitus of *Uria* proper, but of much more delicate build, different pattern of coloration, and very small size. Bill small, slender, much shorter than the head, not longer than the tarsus, greatly compressed, acutely tipped; culmen gently curved, its ridge sharp, rictus nearly straight, gonys straight; tomial edge of upper mandible greatly inflected towards the base, notched near the tip. Nasal fossæ small and shallow, nearly filled with feathers, which mostly cover the extremely minute oval nostrils. Wings of ordinary length, very narrow, pointed, falcate, the secondaries extremely short. Tail of ordinary length, almost square, the feathers obtusely rounded. Feet very small, short, slender and weak; tarsus scarcely compressed, variable in length, never longer than the middle toe without its claw (except in *brachypterus*?). Outer and middle toes equal in length; the claw of the former much smaller than that of the latter; the inner very short, its claw not reaching the base of the middle claw. Claws small, weak, moderately curved, very acute.

The genus which comprises the Murrelets—to coin an English word, needed for the *Brachyrhamphi*—is a very natural and strongly marked one. It comes nearest to *Uria* proper, from which, however, it is sufficiently distinguished, as will be seen by the above diagnosis. It contains four or five species, all inhabitants of the North Pacific,

and more particularly of the west coast of North America. These may readily be diagnosticated as follows:—

- | | | | |
|---|---|---|------------------|
| I. Tarsus much shorter than the middle toe without its claw. | | | |
| Upper parts blackish and chestnut, lower parts blackish and white. | - | - | 1. marmoratus. |
| Upper parts cinereous and white, lower parts pure white. | - | - | 2. Wrangeli. |
| II. Tarsus just as long as the middle toe without its claw. | | | |
| Under surface of wings white. | - | - | 3. hypoleucus. |
| Under surface of wings dusky. | - | - | 4. Craveri. |
| III. Tarsus longer than the middle toe without its claw (teste Brandt). | | | |
| | | | 5. brachypterus? |

Brachyrhamphus marmoratus (Gm.) Brandt.—Habitat: coasts and islands of the North Pacific. On the American side, south in winter to California; breeds as far south as Vancouver's Island.

Form typical of the genus, as just described. Bill along culmen just the length of the tarsus; tarsus scarcely three-fourths the middle toe without its claw.

Adult, breeding plumage (description from a male specimen in the Museum of the Smithsonian Institute, procured June 9, 1867, from Vancouver's Island). Bill black. Tarsi posteriorly and both surfaces of the webs blackish; legs anteriorly and toes superiorly livid flesh-colour, or dull bluish gray. Iris brown. Entire upper parts brownish black, everywhere transversely barred with chestnut-brown, or bright rust-colour, except on the wings, which are uniform brownish black, the primaries darkest, their inner webs brownish gray towards the base. Under surface of wings smoky brownish black. A few whitish feathers variegated with chestnut and dusky on the scapulars. Entire under parts, including sides of head, neck and body, marbled with sooty brownish black and white. The feathers are white, with the tips of the dark colour. The white rather predominates on the middle of the breast and belly, the dusky on the other parts; the latter colour being nearly uniform across the throat, and on the long feathers of the sides and flanks. Specimens vary a great deal in the precise amount of rusty brown on the upper parts, and of dusky mottling on the lower; but, so far as known, are never without this distinctive coloration in some degree; and it becomes heightened at the breeding season.

Length about 10·00; extent about 18·00; wing 5·00; tail 1·50; tarsus ·70; middle toe 1·00, its claw ·20; outer toe and claw 1·15, inner toe and claw ·90; bill along culmen ·70, along rictus 1·35,

along gonys '55, height opposite base of nostrils '25, width at same point '20.

This species was originally described by Pennant as the "marbled guillemot," whence *Colymbus marmoratus* of Gmelin. His description is that of the adult, in breeding plumage, but has been almost universally supposed to refer only to the young; and a very different species has been usually held to be the adult, as shown in the next article. It is also evidently the *Cepphus perdix* of Pallas.

Audubon's figure and description of the supposed young of this bird, under the name of *Uria Townsendii*, is really that of the adult. His figure of the supposed adult appears rather to represent *Wrangeli*.

It is difficult, perhaps impossible, to determine *Uria brevirostris* of Vigors: This is evidently, as far as can be judged by the description, a young bird. It belongs to the short-legged group of the present genus; but whether it is the young of *marmoratus* or of *Wrangeli*, is a point which cannot be decided. The expression "capite dorsoque albo-notatis," and the absence of any mention of rust-colour in the description, would lead one to assign it rather to *Wrangeli*.

Brachyrhamphus Kittlitzii of Brandt is another bird which has not been identified since its original description. Like *U. brevirostris* it is evidently a young bird, of the short-legged group; and the expression "fusco-flavescente undulata" induces the presumption that it is really only a young *marmoratus*. But it is possible that both it and *B. brevirostris* may be the young of the same species, or of two different species, which yet remain to be identified. It is not probable, however, that either of these names represent valid species, distinct from each one of those recognized in this paper.

Brachyrhamphus Wrangeli, Brandt.—Habitat: Aleutian Islands, and north-west coast of America; south to Puget's Sound, and perhaps further. Numerous specimens in the Museum of the Smithsonian Institute.

Description (from a perfectly adult male specimen in the Museum of the Smithsonian Institute, from Sitka, March, 1866).—With the size and proportions of the several members as in *marmoratus*; the bill absolutely shorter, relatively rather stouter. Bill scarcely as long as the tarsus. Tarsus much less than middle toe without claw.

Adult.—Entire upper parts, except the scapulars, very dark cinereous; the centre of the feathers, particularly on the back and rump, blackish, causing these parts to appear obsoletely waved with blackish and cinereous; the crown of the head, the wings and the tail, almost

black, the larger wing-coverts just appreciably white-margined; scapulars almost entirely pure white, forming two conspicuous broad longitudinal bands. Under wing-coverts dusky brown; inner webs of the primaries the same, not fading, even at their extreme bases, into whitish. Entire under parts pure white, immaculate, except some dusky streaks on the long feathers of the sides and flanks. This white on the sides of the head invades the lores to the level of the top of the orbits, and extends into the nasal fossæ; then lowers a little, so that the eyes are left in the dark colour of the top of the head; then on the nape extends almost to the median line, across which a few white feathers extend to the white on the other side, forming an imperfect nuchal collar; then extends in a straight line down the middle of the side of the neck. On the sides of the rump the white extends around so far that the cinereous is only left as a band an inch wide. This white on the sides of the rump is as apparent upon the upper surface as that on the scapulars; it is directly continuous with that of the under parts, but on the flanks the long overlying cinereous feathers appear to separate it. Bill wholly black. Tarsi posteriorly and toes inferiorly blackish; rest of the feet, including both surfaces of the webs, probably flesh-coloured in life; dull yellowish white in the dried skin.

Length "10·00, extent 18·00" (collector's label); wing from carpus 5·00; tail 1·50; tarsus ·70; middle toe without claw ·92, its claw ·20; outer toe and claw 1·10; inner toe and claw ·88; bill along culmen ·60, along rictus 1·25, along gonys ·45, its height at base of nostrils ·22, its width at same point ·19.

Young (described from a specimen in the Smithsonian Museum, from Sitka, July, 1866; just fully fledged; the bill has still the white horny knob at tip of upper and under mandible, showing the juvenility of the specimen).—Bill very small, weak, short, imperfectly developed, about a third as long as the skull; ·45 along culmen; tarsus ·55; middle toe and claw 1·00; wing only 4·25. Entire upper parts blackish, much darker than in the adult, with only a just appreciable shade of cinereous; the scapular white present, but restricted in extent, and interrupted by imperfect bars of dusky across the feathers. Entire under parts white. Everywhere, except on chin, middle of abdomen, and under tail-coverts, thickly marked with delicate waved lines of dusky, most numerous across the throat, largest on the sides and flanks, where some of the longer feathers are mostly dusky, finest on the lower breast. The whitish on the sides of the head does not

extend so far, and merges insensibly into the dark colour; on the nape a delicate line of white feathers almost forms a collar. The under wing-coverts are as in the adult. Bill blackish. Legs and feet anteriorly more dusky than in the adult.

Another specimen in the Smithsonian Museum, taken in January, marked female, and evidently hatched the preceding summer, has the size of the adult, and the colours generally as in the young bird just described. But the upper parts are much lighter and more decidedly cinereous, as in the adult; the scapular white well developed; the dusky waving of the under parts confined to the sides and throat. The under wing-coverts are dusky along the edge of the wing, but are elsewhere variegated with dull whitish; only to a small degree, however, not approaching the condition seen in hypoleucus.

In mature plumage this is a very handsome bird, and recognizable at a glance by the pure white of the under parts, and blackish cinereous of the upper, relieved by the conspicuous white of the scapulars and sides of the rump. It belongs to the short-legged division of the genus, being very different from hypoleucus and Craveri in the proportions of the tarsus and toes. It has the size and form of marmoratus in every respect except a just fairly recognizable difference in the shape of the bill. But it is quite a different species from marmoratus—so different, in fact, that no special comparison need be instituted.

The recognition, in the bird here described, of *Brachyrhamphus Wrangeli* of Brandt is a matter of unusual interest, identifying, as it does, a species long ago described, but almost unknown to ornithologists at large, and throwing light upon what has always been a very obscure point in American Ornithology. The writer is mainly indebted to Prof. Baird's suggestions for the fortunate direction of his investigation in this case. The present species has hitherto been regarded and described by American writers as the *adult* of the well-known marmoratus, whose curious colours, as described by all authors from Pennant downwards, and as figured by Audubon under the name of *Uria Townsendii*, have always been considered as indicative of immaturity. But numerous specimens, in adult *breeding* plumage, demonstrate the falsity of this view, as is satisfactorily set forth in the preceding article. Beyond the possibility of a doubt, the present species is not marmoratus, and it is certainly *Wrangeli* of Brandt.

Brachyrhamphus hypoleucus, Xantus.—Habitat: coast of California. Specimens in the Museum of the Smithsonian Institute and

in the Museum of the Academy of Sciences, Philadelphia. So far south, in summer, as Cape St. Lucas, Lower California.

Description (from a female specimen in the Smithsonian Museum, from San Diego, January 27, 1862; a typical example).—Bill along culmen half as long as the skull, three-fourths as long as the tarsus, as long as the middle toe and half its claw, very slender, much compressed, higher than wide at the base; culmen gently curved its whole length; rictus nearly straight; gonys perfectly straight; outline of the very slender mandibular rami a little concave. Tarsus just as long as the middle toe without its claw! Tip of inner lateral claw not reaching base of middle one. Wings and tail of usual shape; the latter contained about two and a third times in the length of the former from the carpus. Under tail-coverts reaching (in this specimen) just beyond the end of the tail. Entire upper parts uniform cinereous, not varied by white. This colour is slightly darker, and more blackish plumbeous on the head. It extends on the sides of the head just to the eyes, the lids of which are of this colour, a little further down on the auriculars; thence in a straight line along the middle of the side of the neck to the shoulders; thence in a straight line along the sides under the wings, where it is nearly an inch broad; the elongated feathers of the flanks are also mostly of this colour. Other under parts entirely pure white. Under surface of wings entirely pure white! Primaries black on the outer web; the greater part of the shaft and inner webs white; the terminal portion of the shaft and inner webs brown. Tail-feathers black, the inner webs somewhat brownish. Bill black, the base of the lower mandible whitish; feet anteriorly dull yellowish, posteriorly dusky, in the present dried state; "bill black, feet whitish blue, black below" (label).

"Length 10·50; extent 17·50" (label); wing 4·80; tail 1·70; tarsus ·95; middle toe without claw ·95, its claw ·20; outer toe and claw 1·10; inner do. ·90; bill along culmen ·80, along rictus 1·30, along gonys ·45; depth at base ·22; width ·19.*

* The following is the original description of the type specimen:—"Bill slender and slightly curved, about half the length of head. Tarsus scarcely shorter than the middle toe [and claw]. Above dark brownish black, the edges of the feathers with a decided plumbeous tinge; the side of neck below, and the axillars with the concealed portion of the sides of the breast, ashy plumbeous. Entire under parts, including tail-coverts and inside of the wings, pure white, this colour extending on the sides of the head so as to include the eyes; the lids, however, are tinged with dusky; bill black; legs apparently reddish in life.

"Length 10 inches, extent 15·80, wing 4·70, tail 1·80, bill above ·70, gape 1·20,

The specimen above described, collected at San Diego, California, by Dr. J. G. Cooper, is a little larger than the type, as will be seen by comparing the measurements with those in the accompanying foot-note. It is also described as representing the perfect plumage,—the type being imperfect in this respect. The upper parts are of a uniform very dark cinereous, without a shade of brown; the latter hue only occurring in specimens with worn and faded plumage. In the original description, here appended, the indications of the size of relative lengths of the tarsus and middle toe are made without reference to the claw; which fact explains an apparent discrepancy between the present description and the original one. The tarsus is exactly as long as the middle toe without its claw.

This is a very strongly marked species. The most striking diagnostic feature is the pure white of the under surface of the wings. In the uniformity of the cinereous colour of the upper parts it is also unique. Nearly the same length of tarsus is found in *B. brachypterus*, *Brandt*, and *Craveri*, *Salvadori*; the tarsus is much shorter than the middle toe in *Wrangeli*, *Brandt*, *marmoratus*, *Gm.*, "*Kittlitzii*," *Brandt*, and "*brevirostris*," *Vigors*.

This species is certainly not the *Uria brevirostris*, *Vigors*, from San Blas. This is described as having "*alæ supra et infra, tectricesque inferiores fuscæ, * * tarsi* $\frac{1}{2}$," which settles all questions on this score. It has the same dimensions, and the same relative length of tarsus and toes as *Craveri*, *Salvadori*, also from the coast of Lower California; but the latter appears to be a different species, as will be discussed further on. It seems nearest to *brachypterus*, from Unalashka; in fact there is nothing in *Brandt's* brief diagnosis preventing the reference of the present species to *brachypterus*, except the expression "*tarsi digito medio longiores.*" But in view of this discrepancy, and of the widely separated localities whence the two species are described, it would be unsafe to take their identity for granted. It is much the best course to retain the present species as it stands, under the name *hopoleucus*, which has the merit of being positively identified, as is not the case as yet with *brachypterus*.

Several excellent examples of this species from various points along the coast of California are in the collections of the Smithsonian Institution and Philadelphia Academy. They present no individual

tarsus .85, middle toe [with claw] 1.00. This specimen is considerably weather-beaten, and the old feathers of the upper parts are much worn, and bleached at the edges. The new ones are, however, as described."

differences worthy of special mention; except in the instance of the type specimen, which is brownish above, from the faded and worn condition of the plumage.

This species has probably the southernmost range of any of the family; occurring in summer at Cape St. Lucas. It was observed by the writer in December, 1865, off the coast of Mexico, about latitude 21° N.! Its extension northward remains to be ascertained. At present it is not known to occur north of the coast of Lower California. Its southern habitat, as remarked by Prof. Baird, is a fact of great interest, when it is recollected how truly boreal are nearly all the species of the family.

Brachyrhamphus Craveri (Salvad.), Coues.—This recently described species has much the same habitat as *B. hypoleucus*, and very much resembles the latter. The dimensions are the same in both, and the colours are very nearly alike. Prof. Baird has received from Sig. Salvadori, and kindly transmitted to the writer, a life-size figure of the bird, accompanied by a note in which it is stated that “the lining of the wings is blackish, and some feathers are white-edged.” This fact at once distinguishes the species from *hypoleucus*, providing the latter, in all stages of plumage, has the under-surfaces of the wings white, as is most probable, judging by what is known of the variations in plumage of the birds of this genus.

Waiving the bare possibility of this bird being a *young* *hypoleucus*, it cannot be referred to any described species, and must be regarded as a valid one. That it is not *brevirostris*, *Vigors*, is sufficiently evident from the dimensions, the tarsus of the latter being only half an inch long.

Brachyrhamphus brachypterus, Brandt.—“Suprà cinerea, alis caudaque nigricantibus. Collum subtus et in lateribus, pectus et abdomen alba. Rostrum capitis dimidii circiter longitudine. *Tarsi digito medio longiores*. Longitudine a rostri apice ad caudæ apicem 9. Patria Unalashka.”—*Brandt, l. c.*

This species is wholly unknown, at least on this side of the Atlantic, except by the above cited description of Brandt. It has nothing to distinguish it from some other *Brachyrhamphi* except the length of the tarsus. This, however, if it really obtains, is sufficient to distinguish the bird from all others, not only of the genus, but of the family; for no known alcidine bird has the tarsi longer than the middle toe.

(To be continued.)

Ornithological Notes from North Lincolnshire.

By JOHN CORDEAUX, Esq.

(Continued from S. S. 2089.)

THE HUMBER MUD-FLATS IN AUGUST.

THE various shore birds frequenting this coast are returning much earlier than is usual. This I observed was also the case in the dry summers of 1864 and 1868, hot and forward seasons being invariably favourable to the early nesting and growth of the young of our northern migratories. As early as *the first week in the month* small flocks of knot appeared on the coast, followed later by several other species. The ingathering of our splendid harvest having for some weeks, early and late, fully occupied me, left no time for Ornithology: frequently, however, when returning late in the evening from my marsh farm, I have recognized the familiar call-notes of the shore birds, or marked their serried ranks as they dash and wheel in rapid flight over the fore-shore, and have been astonished at their number and early appearance, for never since I have known these flats have I seen so many and various flocks so early in the season.

This afternoon (August 29th), having a few hours to spare, with my telescope,—a tried and trusted companion in many a coast ramble,—I took the nearest road to the shore, with the determination of giving up the remainder of the day to birds, and birds only. The result of the afternoon's walk was so satisfactory, and I may add unexpected, that I think a detailed account may perhaps interest the readers of the 'Zoologist.'

Near the Humber embankment I had to cross a field of summer-eaten clover, from which the sheep had a few days been removed. It was very bare, little but the clover roots remaining. In this field were a mixed flock of dunlin and ringed dotterel. My glass shows me that they are mostly at rest: some stand with the head turned back over the shoulder; others, in the same position, nestle close to the ground; they all have their front towards the wind: a few bright and pretty ringed dotterel are walking leisurely to and fro, stopping occasionally to pick up something from the ground; but feeding at present is evidently not their object: with these dotterel are two sanderlings, distinguishable from the dunlins by their much lighter colour and short beak. Mixed indiscriminately amongst the flocks are several starlings, and, oddly enough, these habitual day-feeders had followed the example of the waders, and were taking an afternoon nap.

Nearer to me, within less than a hundred yards, are four birds, both larger and darker-looking than the dotterel: they are running rapidly about, exhibiting an energy in singular contrast to the slumbering flock; they are turnstones, birds of the year, and for the next half hour I am delighted to have an opportunity of quietly watching their mode of feeding. They run quickly, now here, now there, and keep constantly jerking over the fragments of dried sheep-dung with which the land is almost covered. In many cases this is no easy task, as it is dried with the sun, flattened to the surface, as well as clover-grown, yet it is surprising with what ease, by a rapid down and upward movement of the head and shoulders, this is effected, and they seldom fail to pick up some concealed insect underneath. On an examination of the ground I find the dung shelters several small species of Coleoptera, and on these doubtless the turnstones were feeding.

There are many hundreds of gulls on the flats, principally brown-heads, both old and young: some of the former have lost the summer cap, in others it is still perfect. The gulls are, now the close season is over, becoming very shy and wary: they all rise as soon as I show myself, and with loud clamour seek the river. Half-way down the flats a flock of knot are feeding, and my glass is again brought into requisition. There appears to be about three hundred. The greater portion, four out of five I should say, are birds of the year, and have buff-coloured breasts. There are others, however, which exhibit, in a greater or less degree, the rusty red pectoral plumage of summer. These old birds are all in a transition state, and I do not see one in the full plumage of summer.

At the mouth of the creek, where the main drain enters the Humber, are a pair of old great blackbacked gulls, magnificent fellows, in brilliant plumage: they are excessively wary, and on this flat coast an old full-plumaged bird is as difficult to bag as the great northern diver himself. As I lift my head above the level of the embankment they rise, and with slow flappings make towards the centre of the river. To the left of the creek some curlew and whimbrel are feeding: the latter stand in a row along the edge of the river, washing and preening their feathers. Two birds here cross the bank, within easy shot, but I have no gun with me: they look like golden plover; I mark them down in one of the pastures, and hope to have later in the day an opportunity of making their acquaintance. Half-a-mile above the out-fall there is another flock of knot; at a rough calculation there are five or six hundred. This flock, like the other previously examined, is

composed principally of young birds. There are, however, a few old birds amongst them yet retaining the full summer dress, others are in the transition. Some are washing in the salt water pools, others feeding, many with the bill turned backward and sleeping. With the knot are twelve bartailed godwits, two in perfect summer plumage, others in transition, the remainder apparently birds of the year: they are all feeding, as godwits usually do, as if they had no time to spare. I have before in this journal described their manner of foraging, running rapidly over the flats, and constantly probing the mud with their long bills, as if feeling for their food. It is easy to see when they are successful, as then every motion of the bird displays extreme energy, and the fore part of the head is often thrust underneath in their efforts to reach and hold some concealed creature. In this case their prey was evidently some species of annelid: often when the bill was withdrawn I perceived a large worm dangling from it: this required a little manipulation before it could be swallowed. The bird's head would be thrown back, and the mandibles rapidly worked till the worm became properly adjusted, when down it would go, the neck perceptibly swelling and thickening in the operation, just as we have seen a thrush or blackbird bolt a lobworm. There is then a satisfied smack of the mandibles, and the search recommences. I have often thought when watching godwits that the slightly recurved form of bill is admirably adapted to their mode of searching the ground, that shape being the best suited to penetrate easily the mud, the bird at the same time advancing. The position and curve of the teeth of many of our agricultural implements, especially constructed for penetrating the soil, will best illustrate my meaning. Beyond the knot and godwit, and close to the edge of the advancing tide, are three gray plover; all have the black breast of summer.

I had closed my telescope and was leaving the embankment when I observed nine large birds crossing the flats, flying directly towards me: they were about the size of whimbrel, for which I mistook them, and should have gone away with this impression had it not been for their call-note, uttered as they swept onward with half-closed wings amongst the knot and godwit: their note, totally unlike the "bleat" or "whelp" of godwit, resembled (for so I wrote it down on the back of an envelope at the time) the word "citty, citty, citty," rapidly repeated. The glass at once shows they are amongst the rarest of our shore birds, blacktailed godwits. Some are old birds, two yet in the beautiful summer dress, another is changing to the winter plumage,

the rest appear birds of the year. On alighting they commenced feeding with the "bartails," affording a most favourable opportunity of comparing the two species. The most obvious distinction when we see them side by side is the much larger size of *L. melanura*, and their longer legs and bill: this difference in size looks as comparatively great as that between the curlew and whimbrel. In other respects their habits are much alike, and they seem equally fond of washing and preening their feathers. They are much shyer, however, than the bartailed species.

All this time the tide was rising and rapidly covering the flats; the whole company of birds slowly retreating before it, and approaching the embankment. I have never before in August seen so numerous and goodly a company. Now that the harvest is gathered these marshes have a bleak and wintry aspect, and the effect to-day increased by the heavy masses of piled cumuli in the north and west—had it been winter these cloud mountains would certainly presage a snow-storm: as I am leaving the coast the sun for a few moments bursts out from behind the cloud range, illuminating the brown river and its dreary belt of mud with floods of light, and brings out in strong relief the various troops of gulls and waders dispersed over two miles of foreshore. But my luck was not yet over: walking homewards across the marsh pastures I disturbed a small flock of waders: they soon settle again and prove old acquaintances, a ruff and seven reeves, the former now without his brilliant nuptial garb, and only distinguishable from the reeves by his larger size. In this same field were the two birds marked down two hours previously: as I had expected, they proved golden plover, both young birds of the year: they permit me to walk past within less than twenty yards, and even stand without taking the alarm.

Probably few places on our east coast can at this time show a more varied and interesting assembly of shore birds than the Humber flats. In less than four hours I have seen curlew, whimbrel, bar and black-tailed godwit, knot, ringed dotterel, dunlin, sanderling, turnstone, gray and golden plover, and ruff and reeves; besides great and lesser blackbacked gulls, "brown-heads," common and herring gulls.

I have neither seen nor heard any greenshank during the month, and what is rather remarkable, considering they are by no means uncommon at this season, no redshank.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,
September 8, 1870.

A List of the Hemiptera collected by J. K. Lord, Esq., in Egypt, along the African Shore of the Red Sea and in Arabia; with Descriptions of the Species new to Science. By F. WALKER, F.L.S.

KLUG, in his 'Symbolæ Physicæ,' has contributed much to the illustration of the insects of Arabia, but the Entomology of Egypt has been for the most part neglected. The latter region, once the bed of a sea, was gradually peopled with an insect-fauna, partly resembling that along the shores of the Mediterranean, and of which there are some traces on the sandy sea-coasts of England. This fauna has been modified by the very ancient cultivation of the soil, and by the agency of the Nile in distributing along its banks some of the products of the interior of Africa.

The localities in which insects were collected by Mr. Lord are as follows:—

Egypt.—Cairo, Shoobra, Heliopolis, Red Mountain, Geezech Pyramids.

Africa, near the Red Sea.—Berenice, Souakin, Hor Tamanib, Massowah, Sheyk Berout, Akeek (island), Harkeko, Dahleck (island), Rafla (Annesley Bay), Tarjora (Straits of Bab-el-Mendeb), Akeeko (Arab village), Zayla (Indian Ocean).

Arabia.—Wâdy Gennèh, Wâdy Amara, Wâdy Sidri, Wells of Moses, Pharoah's Baths, Wâdy Ferran, Wâdy Nash, Wâdy-es-Sheykh, Tór, Wâdy Gharandel, Wâdy Hebran, Plain of Ramleh, Gebel, Musa (Mount Sinai), gardens round Mount Sinai, sandy plains (Mount Sinai), Convent Garden (Mount Sinai), Wâdy Atall.

Fam. PACHYCORIDÆ.—Gen. LIBYSSA, *Dallas*.

1. *12-punctata*. *Cimex 12-punctatus*, *Fabr. Ent. Syst. Suppl.* 527. Hor Tamanib. Inhabits S. Africa and Madagascar.

Fam. EURYGASTRIDÆ.—Gen. TRIGONOSOMA, *Delaporte*.

2. *Falcata*. *Cimex falcatus*, *Cyrillo, Ent. Neap.* 5, pl. 6, f. 9. Mount Sinai. Inhabits S. France, Trebizond, Sicily, Egypt and Ceylon.

Fam. CYDNIDÆ.—Gen. ÆTHUS, *Dallas*.

3. *Brunneus*. *Cydnus brunneus*, *Fabr. Syst. Rhyn.* 185. Cairo. Inhabits S. Europe and Syria.

Gen. CYDNUS, *Fabr.*

4. *Aterrimus*. *Cimex aterrimus*, *Forster, Nov. Ins. Sp.* 71. Cairo. Inhabits S. Europe.

Fam. HALYDIDÆ.—Gen. AGONOSCELIS, *Spinola*.

5. *Versicolor*. *Cimex versicolor*, *Fabr. Ent. Syst.* iv. 120. Zayla. Inhabits W. Africa, S. Africa and E. Africa.

Gen. MUSTHA, *Am. et Serv.*

6. *Spinosula*. *Halys spinosula*, *Lefebvre, Mag. Zool.* 1831, pl. 21. Wâdy Gennèh. Inhabits Greece, Turkey and Egypt.

Fam. PENTATOMIDÆ.—Gen. ANTESTIA, *Stal.*

7. *Flavovaria*. *Rhaphigaster flavovarius*, *Dallas, Cat. Hem.* 288. Harkeko. Inhabits Hindostan.

Gen. STRACHIA, *Hahn*.

8. *Placens*. Metallic-green, roughly punctured; markings luteous, partly whitish. Head in front of the eyes with a slender border, which is accompanied by a streak on each side, above and beneath; under-side, pectus and abdomen luteous, the latter with black dots on each side. Antennæ black. Prothorax with a border, with a stripe, with a band near the fore border, with an oblique streak proceeding from the band on each side hindward, and with a callus where the band traverses the streak. Scutellum with a clavate streak on each side and an apical spot. Each fore wing with a streak along the base of the fore border and two streaks in the disk, the hinder streak transverse; membrane black. Legs luteous; femora with a black streak near each tip; tarsi and four posterior tibiæ towards the base black; fore tibiæ mostly black. Length of the body 3—3¼ lines. Wells of Moses. Wâdy Nash. Mount Sinai.

9. *Amænula*. Black with luteous markings, finely punctured; under side and legs luteous. Head luteous, with an irregular black band on the hind border. Antennæ black. Prothorax with a stripe and with two dots on each side; fore border and sides also luteous. Scutellum luteous, with a large semicircular basal black spot, which is divided by a luteous longitudinal line. Fore wings with a stripe along the fore border and with two little contiguous streaks. Length of the body 2—2½ lines. Mount Sinai.

Gen. RHAPHIGASTER, *Delaporte*.

10. *Prasinus*. *Cimex prasinus*, *Linn. Syst. Nat.* i. 722. Cairo. Harkeko. Inhabits Europe, W. Indies, S. America, Africa, Asia, New Zealand, and many eastern islands.

11. *Flavolineatus*, Hope, *Cat. Hem.* 31. Hor Tamanib. Inhabits Hindostan, Ceylon, and some eastern islands.

Fam. EDESSIDÆ.—Gen. CYCLOPELTA, *Am. et Serv.*

12. *Funebri*? *Cimex funebris*, *Fabr. Ent. Syst.* iv. 116. Wâdy Ferran. Inhabits W. Africa. This specimen here recorded may be a different species.

Fam. COREIDÆ.—Gen. GONOCERUS, *Latr.*

13. *Notatus*. *Cimex notatus*, *Thunb. Nov. Ins. Sp.* 27. Harkeko. Massowah. Inhabits S. Africa.

(To be continued.)

The Horn of the Indian Rhinoceros Moveable.—Interested, like very many others, in the curious feat of self-mutilation performed by the male rhinoceros at the Zoo, I paid him a visit on Saturday, August the 27th, expecting to see the horn itself adorned with a label notifying the particulars of so extraordinary an event: in this I was disappointed; but I made an observation on the female rhinoceros which was so new and interesting to me that I think it worth recording. It has long been observed by all who habitually frequent these gardens, that this horn topples forward over the creature's mouth, and has thus assumed a very extraordinary appearance; but it has not been recorded, or I should perhaps say that I have seen no record, of the horn being moveable, not perhaps at the will of the animal, or by the assistance of any muscles connected with the horn, but by the application of some external power, such, for instance, as that of a man's hand. I saw this phenomenon exhibited several times by a visitor at the gardens, and it was very evident that the horn was *loose*, just in the same sense as we speak of a loose tooth. It is, I believe, an opinion now universally received, that the material of which the horn is composed is exactly the same as hair, that it is in fact neither more nor less than conglomerate hair; but there is nothing in this to induce the belief that it could be moved independently of the head, and indeed independently of the skin, for as the operator rocked the horn very gently to and fro a slight fissure became evident between the base of the horn and the skin immediately surrounding it, so that it not only seems probable that this creature may shortly become hornless, like its mate, but it suggests the idea that the horn of the rhinoceros, like that of the stag, may be deciduous and renewable. In connection with this subject the following note by a well-known zoologist will be found highly interesting: it is extracted from the 'Field' newspaper of the 10th of September.—*Edward Newman*.

The Lesser One-horned Rhinoceros in England.—Happening to take up the volume on pachydermatous mammalia in the 'Naturalist's Library,' I was surprised to discover that the "Indian rhinoceros," of which two figures are therein supplied, is the lesser one-horned species, *R. sondaicus*, and not *R. indicus* as heretofore considered. This is at once shown by the fold at the base of the neck—in addition to that behind the shoulders—being continued across, which is never the case with the larger *R. indicus*, and also by the uniformity of size of the small tubercles which stud the body, shoulders and haunches. The dimensions of the adult animal equally prove the correctness of this identification: "height from the highest part of the back 4 ft. 8 in.," &c. The specimen was "a male, and was brought from Bengal, having been for some time kept in the gardens of the Governor-General at Calcutta," *i. e.* in Barrackpore Park. It is now ascertained to be the species which inhabits the Bengal Sundarbans. "He has been sixteen months in Britain," it is added, "during which time he has visited London, Glasgow and Edinburgh, and is at present" (*circa* 1835) "the property of the proprietors of the Zoological Gardens at Liverpool. It is stated to be six years old, and to weigh two tons; is a beautiful specimen, and appears to be in the highest state of health." Upon a former occasion (*loc. cit.*) I showed that both the *R. javanicus* and the *R. sumatranus* of F. Cuvier are founded on native drawings of the latter species, which I prefer to call the Asiatic two-horned rhinoceros, and the other the lesser one-horned rhinoceros, now that we know that both of them have an extensive range on the mainland of S.E. Asia. What I here bring to notice is the fact that we have had *R. sondaicus* alive for many years in this country without anybody knowing it.

Note on Cervus Alfredi, the new Indian Deer, at the Zoological Gardens.—Your correspondent R. A., of Bangalore, pronounces authoritatively (p. 173) that "the *Cervus Alfredi* is no other than the common hog deer, *C. porcinus*, the 'dray' of Burma and the Malay coast." I beg to assure him that he is mistaken. Undoubtedly it is a species akin to the "para" of Eastern Bengal, "dray" or "durai" of Arakan and the Tenasserim provinces, which I know familiarly to be the true *porcinus*; but in the Zoological Gardens, Regent's Park, both species may now be seen, and their identification as the same is out of the question. One remarkable feature of *C. Alfredi* is the smallness of its ear-conch as compared either with *C. porcinus* or *C. axis*; and, moreover, this part is uniformly filled up with shortish hairs interiorly, not partly nude within, with the usual stripes of long hair seen in its immediate congeners. It is, moreover, different in shape from—not so broad as—that of the hog deer. The tail is like that of the *axis* deer, but shorter, and black instead of brown above; not bushy like that of the hog deer, as it holds it up when running. I may add that I never before heard of *C. porcinus* anywhere in the Malayan peninsula; but it is worthy of remark that the *C. axis*, or Indian spotted deer, is stated to have been introduced both in Province Wellesley and Sumatra, where it is not impossible that *C. Alfredi* may have been mistaken for it.—*From the 'Field.'*

Otter in the Tame.—A dog otter was shot last night in the River Tame, about a mile below this town. Length from nose to tip of tail 49 inches; girth 18½ inches.—*Egbert D. Hamel; Bole Hall, Tamworth, September 20, 1870.*

Lesser Kestrel near York.—I regret that I have not before answered the editor's summons to give some additional information about the lesser kestrel (*Tinnunculus*

cenchris) supposed to have been shot near York. The name of the gentleman who shot it and skinned it is Mr. Harrison, and the place it is stated to have been killed at is Greenhamerton, near York.—*J. H. Gurney, jun.*; 2, *Beta Place, Alpha Road, N.W.*

Hen Harrier.—On Monday a male hen harrier (*Fulco cyaneus*) dashed into a net at Preston after a starling as decoy. Curiously enough, two harriers did the same thing at the above-named spot on the 8th of November, 1867, in a net belonging to the same person who caught this bird. The fact leads me to remark how constantly Nature repeats herself, and particularly in the matter of Ornithology, as I have often found to be the case.—*George Dawson Rowley; Chichester House, Brighton, August 24, 1870.—From the 'Field.'*

Supposed Occurrence of Strix asio in Kent.—Undeterred by the adverse opinions of our most distinguished ornithologists, I cannot help returning to the charge about the owl that I saw last spring, which I still believe to have been *Strix asio*. Certainly I made a mistake sufficient to raise doubts in any mind when I said it was eleven inches long, but I am now convinced it was only about eight inches long. I maintain that no argument can prove that *Strix otus* ever has several distinct white spots on its wings; whereas Linnæus describes *Strix asio* as possessed of “*quinque maculis albis.*” Audubon's plate of *Strix asio* represents my bird exactly, even to the very attitude. As to the idea of its being the little owl, I know an eared from an earless owl: a long-eared owl may perhaps depress its ears like a hare, so as to appear almost like an earless owl; it cannot shorten them. One glance at a plate of the Scops eared or mottled owls will show what I mean by short ear-tufts.—*Clifton; Cobham, September 22, 1870.*

Owl chased by Rooks.—Late one evening in July, walking out towards Preston, I was surprised to see in a field on the opposite side of the road, and only a few yards from a low fence by the road-side, an owl (*Syrnium stridula*) flying towards me pursued by seven or eight rooks: on arriving at the hedge, the rooks gave up the pursuit, and joined a large flock which were sitting in the upper end of the field, whilst the owl took refuge in some elms bordering the side of the path I was walking on. I should much like to have seen more of the chase than the short view I got of it. The rooks were flying very fast and surrounding the owl.—*Alwin S. Bell; Weymouth, September 7, 1870.*

Buffcoloured Redwing.—Mr. Gatcombe records a buffcoloured redwing killed near Plymouth (Zool. S. S. 2139). I possess a similar variety, but having the buff colour pencilled with light gray markings, and, as in the Plymouth specimen, the red patch on the side of a paler shade. I shot it and two or three other redwings out of a small flock in the “*Plantation*” at Scarborough some fifteen years ago. Since then, with the exception of Mr. Gatcombe's bird, I have not heard of or seen any similar variety of this species. In the same case with the redwing is a fieldfare, the general plumage mottled with white, taken on Filey sands in the winter of 1866.—*Alwin S. Bell; Weymouth, September 7, 1870.*

Black Redstart near Southampton.—On the 27th of August a gentleman of Southampton shot a black redstart in this vicinity, and on the 29th another; a third was seen at the same time, but he could not obtain it. The first bird was spoiled by the shot, but the second has been preserved, and is now in the possession of the captor.—*T. H. Goatley; 4, Strand, Southampton, September 17, 1870.*

Grayheaded Wagtail breeding near Gateshead.—I have seen a good many notices in

the 'Zoologist' of the occurrence of the grayheaded wagtail: it may interest you to hear of its breeding in this neighbourhood. Two nests were found by a friend of mine last year on some swampy ground near here; this year, on the 13th of June, I found another; and on the 8th of July my friend shot two young birds beginning to assume their mature plumage: one of these birds is in the possession of, and was identified by, Mr. Hancock, of Newcastle.—*J. Watson; Gateshead, September 15, 1870.*

Rose-coloured Pastor near Brighton.—On Saturday last, August 20, a farmer near Brighton observed two pretty birds which, in company with some starlings, perched every now and then on the backs of his sheep. Having fetched a gun he shot both—not, however, without touching up one of his flock. These birds proved to be *Pastor roseus*, the rosecoloured pastor, one of which I saw in the hands of Mr. Swaysland, the naturalist, on Monday.—*From the 'Field.'*

Cream-coloured Magpie.—A friend has lately told me of a cream-coloured magpie he saw near Manchester.—*E. D. Hamel; Bole Hall, Tamworth, September 20, 1870.*

Three Cuckoo's Eggs laid consecutively in the same Nest.—Three cuckoo's eggs were taken this season, at three distinct times, from the same straw-stack and the same nest: I should think that the same water wagtails laid three distinct times, and perhaps the same cuckoo. All three eggs are in my possession, and are all alike; the last was laid as late as the 1st of July.—*E. Charles Moor.*

Great Spotted Cuckoo.—I have the honour to forward you the announcement of a very rare bird (the great crested or spotted cuckoo) which was shot in Northumberland some weeks since. As it is the first specimen ever shot in Great Britain, the notice will be interesting to naturalist readers.—*Ernest Charlton, in the 'Field' newspaper.*

[At page 205 of the second volume of his 'British Birds,' Mr. Yarrell gives an excellent figure and some very interesting particulars of the occurrence at Clifden, on the west coast of Ireland, of the specimen from which the figure was taken. To these details Mr. Yarrell appends the following additional information:—"Another specimen, taken at Llawrenny is now in the collection of R. J. Auckland, Esq., of Boulston, near Haverfordwest.—*Zool. 1851, p. 3046.*" On referring, however, to p. 3046 of the 'Zoologist,' the only cuckoo I find mentioned in addition to the common species is the yellowbilled American cuckoo (*Coccyzus americanus*), a specimen of which was killed at Stackpole Court by a Mr. Tracy, as communicated to the 'Zoologist' by Lord Emlyn at the very page cited by Mr. Yarrell. It seems to have been a *lapsus calami* on the part of that truly illustrious naturalist referring to the 'Zoologist' in this place, as the reference occurs also, and correctly, at p. 215 of the same volume under "*Coccyzus americanus.*"—*Edward Newman.*]

Sand Martin Nesting in a Tree.—The fact of a sand martin (*Hirundo riparia*) choosing the above site for its nest is sufficiently unusual to deserve recording, even if it has not been altogether unnoticed by ornithologists. Over a tributary of the main river, near the village of Godstow, in Oxfordshire, is a little old stone bridge, and not only have the sand martins bored several holes in the crumbling mortar between the stones, and there nested, but this year on June 17 I found a nest containing five eggs, about a foot down a hole in the gnarled stem of an elm tree, which itself grows out from between the masonry and overhangs the river. The old bird was on the nest when I first went to it, and returned again directly I left the immediate vicinity.—*C. Bygrave Wharton; Willesden Lane, Middlesex.*

Alpine Swift at Aldeburgh.—The wind has been blowing very severely from the

westward and southward during the week past. On Thursday, the 8th of September, an alpine swift was captured in a room at Brudenhall Hotel, under very singular circumstances. The bird had repeatedly "rapped" at the window for admittance, and at last the occupant of the room, who had been busy cleaning his gun, opened it and admitted the "illustrious stranger," which proved to be a very perfect specimen. It was in company with another, who did not, however, quite see the joke of being "taken in" like his companion, and speedily "put off."—*N. Fenwick Hele, in the 'Field' of September 17th.*

Pigeon Races in Belgium.—The race recently flown from Bazas has been followed by a second grand *concours* from Bordeaux to Brussels. This was flown on Saturday, the 23rd of July, when 1226 pigeons were liberated at five in the morning, the wind being north-east. The winner of the first prize reached home at a quarter to one on Sunday, the distance being 734 kilometres, or about 465 miles. On the same day a *concours* of 860 birds was flown from Bagnères de Bigorre to Liège. The first prize of 1300f. in value being given by the King of the Belgians, and the second of 1000f., third of 900f., &c., by the Society. The prizes awarded to the winning birds in this race amounted to nearly £700.—*From the 'Field.'*

Solitary Snipe and Quail in Denbighshire.—On the 8th of this month my father killed, near here, a fine specimen of the solitary snipe: it has been sent to Shrewsbury for preservation. On the 14th, while out partridge shooting, my father shot two brace and a half of quail in the same neighbourhood: it has also been ascertained that there were in the same locality two nests besides, this summer, but unfortunately the eggs were destroyed.—*W. J. Kerr; Maesmôr, Denbighshire, September 18, 1870.*

Woodcock and Godwit.—With reference to the godwits and woodcocks, the serrated claw in *Limosa melanura* has long been known, but that it is not constant is proved by a specimen in my possession, which has the claw of the middle toe not in the least serrated. Ornithologists have long ago decided that the markings on the outer edge of the first quill in the woodcock are no criterion of sex: I have dissected several, and it does not hold good. Yarrell remarks of them, that they are rather indications of youth than of sex, the marks getting "obliterated by degrees." ('British Birds,' ii. p. 595.—*J. H. Gurney, jun.*

British Sandpipers at Scilly.—The elegant form of our sandpipers (*Totani*) renders them always agreeable visitors, whether on the margin of water or on the wing. There is a shyness and wildness in their nature which add to their interest with sportsmen. The common sandpiper, green sandpiper, redshank sandpiper and dusky sandpiper (the spotted redshank of Bewick and Gould) have all appeared, in their southern or autumnal migration, at the Scilly Isles during the last fortnight. I believe there is little or no seasonal change of plumage in the common, green or wood sandpipers of a remarkable character, but in the redshank and dusky sandpipers the change of plumage is striking, especially in the dusky sandpiper, which in summer becomes almost sooty black, from pale cinereous in winter. The dusky sandpiper in its first year previous to the autumnal moult shows a plumage well represented by Bewick in his figure of the *spotted redshank*, with the spots perhaps a little less defined: when they moult, which they do at this period, this state of plumage gives way to an uniform cinereous brown on the back, with the under parts almost white, instead of being marbled over brocoli-brown. I mention this to induce further observations from those who may obtain specimens at this time; for in a fine example of a bird just sent from Scilly, I

observe the moult has commenced, and a few cinereous gray feathers are cropping out on the spotted back, showing the assumption of the winter plumage. I have not yet heard of any wood sandpipers at Scilly. It may be worth noticing that the spots in the plumage of young wood sandpipers are strongly tinged with yellow.—*Edward Hearle Rodd; September 5, 1870.*

Buffbreasted Sandpiper at Scilly.—A fine male specimen of this beautiful stint was shot on the margin of a pool at St. Bryher's, one of the inhabited islands at Scilly, last week, and is now set up by Mr. Vingoe with expanded wings, showing the elegant markings and powdered specks peculiar to this species. This, with two additional pectoral sandpipers, also from St. Mary's, Scilly, one of which, the male, is so superior in size to the other that it seems that I am supported in the opinion that in this, as well as the buffbreasted stint, the male is the largest.—*Id.*

Pectoral Stint or Sandpiper at Scilly.—Since I wrote to you with a few notes on the visits of the sandpipers to the Scilly Isles this autumn, furnished by my friend Mr. Jenkinson, who returned from the islands yesterday, I am enabled to add the occurrence, for the second time, of the pectoral sandpiper, which he shot just before he left the islands, and which he brought with him for my inspection. It is in very fine plumage, but presenting no feature of difference from the one obtained from the same locality by the late Mr. D. Mitchell, and referred to by Yarrell, in his article on the pectoral sandpiper in his 'British Birds.' Perhaps the breast presents a rather greater tendency to summer plumage, from the prominence of the dark markings: the feet and legs were brownish yellow.—*Id.; September 8, 1870.*

Pectoral Sandpiper at Scilly.—I merely wish to add to my former communication that another specimen, and apparently one amongst a flock, has been captured at Scilly. I suppose therefore that this species may be regarded as having hitherto escaped observation, and that vigilant eyes may find the species more generally spread about as one of our autumnal visitors than was anticipated. The legs may be described as greenish yellow: this is a good mark of distinction from the dunlin at all times.—*Id.; September 12, 1870.*

PS.—As a supplement to my former letters on the occurrence of the pectoral stint or sandpiper at Scilly, I write to inform you that a fine male specimen was kindly sent to me as a present by my friend Mr. Augustus Pechell, whose name has frequently appeared in the 'Zoologist' as having contributed rare British birds to the Cornish Avifauna. This specimen appears larger than the others I have seen, and it is a character at variance with the *Tringæ* generally, as the females (especially in the dunlin and when old) are much the largest.—*E. H. R.; September 16, 1870.*

Spurwinged Goose.—Mr. Rodd is mistaken in supposing that the St. Germans' spurwinged goose (which was not visible at Newcastle when I last made inquiries for it) is "the only recorded British specimen." One was killed near Banff in 1855 ('Naturalist,' 1855, p. 181), and is stated in the third edition of Yarrell's 'British Birds' to be in the possession of Mr. Smurthwaite, of Richmond, Yorkshire; but on a recent visit to that place with my father we could hear nothing of it, and I am unable to say whether it is referable to the true *Anser gambensis* or to *Plectropterus rueppelli* of Selater ('Ibis,' iii. p. 375). In Kennedy's 'Birds of Berks and Bucks' there is a full account of another spurwinged goose which was shot near Boveney Weir by a waterman (p. 201), and another is recorded in 'Science Gossip,' for March, 1870, to have been captured in Wilts: the Rev. F. O. Morris also wrote to the 'Times,' last

November, that a young one had been got upon Salisbury Plain. Such records might be multiplied, but it is questionable if many of them do not refer to escaped birds. I take this opportunity of asking if the pinkfooted goose is not found in Cornwall, as it is not included in Mr. Rodd's list. In most places it is commoner than the bean goose, which he states to be "our common wild goose" (Zool. S. S. 2276).—*J. H. Gurney, jun.*

Dabchicks in Kensington Gardens.—There were twenty-five dabchicks on the round pond at Kensington yesterday: most of them had commenced shedding the adult summer plumage. Mr. T. D. Pigott informs me that he has seen as many as ninety-eight; a circumstance which seems worth putting on record.—*Id.*; August 23, 1870.

Terns at Henley-on-Thames.—Whilst walking by the river last Sunday I saw a tern of the common species flying about close to the bridge: it was evidently much tired, for it flew very weakly. We frequently see both terns and gulls on our reach.—*Charles E. Stubbs; Henley-on-Thames, Oxon, September 13, 1870.*

Where do our Summer Visitants go?—I have often thought that we need some reliable information concerning the doings of our summer visitants during the time they are absent from us. Can any of the readers of the 'Zoologist' enlighten us on this point? I believe it is pretty well known where many of them are to be found during our winter months; but I have never read from any reliable source in what way they pass their time, and if they are noticed to leave their winter quarters for our shores. Do they propagate while they are away? Are they in song—for instance, the nightingale, swallow, &c.? Some very interesting letters might be written on this subject, if any of your readers would direct their attention to the matter.—*Edward Sweetapple; Eynsham Paper Works, near Oxford, September 12, 1870.*

Spinous Shark taken off Penzance.—A spinous shark was taken here yesterday on a hook and line, about a mile off shore, on as nearly as possible the ground on which a spinous shark, of which I advised you at length (see Zool. Feb. 1866), was taken in December, 1865. This specimen was eight feet long and three feet in girth. It corresponds very closely with Couch's figure, and still more closely with Yarrell's second figure (first Supplement, p. 56). It was of a dark lead-colour. The eye slightly oval, but more round than is usual in sharks. The fish was bulkier in proportion to its length than my former specimen, and the spines were scarcer, stouter and shorter; they were also more regularly set, and being recurved backwards were less so than in the other. These and the superior bulk of this fish in proportion to its length constitute the only points of difference between the two specimens. In all particulars of dentition, gills, spiracles, and size and position of fins, the specimens correspond, and I therefore consider them of the same species, and attribute these differences to age or sex. Both these specimens have two anal fins on the same plane (just as the pectorals are): Yarrell and Couch show only one; they, especially the latter, figure the pectorals badly. The eye had a very small range upwards, but a very extensive scope downwards and forwards. The fish was taken on a bream-hook, and secured in good condition.—*Thomas Cornish; Penzance, September 8, 1870.*

Sting Ray near Penzance.—A specimen of the sting ray, or fire-flaire, was taken in Porthcurnow Sands, about nine miles west of this place, on Wednesday, August

24th. It is the first specimen I have ever seen in this bay. There is nothing requiring remark about it in addition to the notes of Couch and Yarrell, except that in the front of the mouth were spiracles divided from each other by a cartilage, and each divided in itself by a free lobe, both being covered by a square flap of fleshy substance, which was extended so as to cover the front part of the mouth. I never saw any arrangement like this in any other ray.—*Thomas Cornish; Penzance, August 26, 1870.*

Small-eyed Rays in Mount's Bay.—On Tuesday, the 30th of August last, I took four small-eyed rays (*R. microcellata*); but as I can almost certainly depend on taking some of these fish on the ground where I took them (Pra Sand, Mount's Bay), I merely note the fact for reference.—*Id.*

Thrasher in the West Bay, Portland.—A thrasher, measuring ten feet three inches in length and three feet three inches and a half in circumference, was taken in a seine in the West Bay at Portland yesterday afternoon, and is now being shown in a tent on the sands here. About four thousand pilchards were taken in the same haul, a number of others escaping over the top of the net in the commotion caused by the shark.—*Alwin S. Bell; Weymouth, September 14, 1870.*

Cray-Fish.—I am anxious to obtain the geographical distribution of the river cray-fish (*Astacus fluviatilis*). In compiling that part of my 'Catalogue Fauna of Devon' relating to the stalk-eyed Crustacea, including an introductory essay on the histology of their shells, which I read last week before the Devon Association for the Advancement of Literature, Science, and Art, held at Devonport, I was greatly astonished to find that the cray-fish is not a native of Devon. I have made inquiries in every direction where I thought to obtain information of this species, but have so far not been able to procure or hear of an authentic Devon specimen. It is stated by Dr. Moore, in Loudon's 'Magazine of Natural History,' that there was when he wrote a Devon specimen in the museum at Plymouth, from Mr. Prideaux, but no locality was attached to it; and this is the only one I have heard of in the county. I have had them from the Tane, near Taunton; and I have had them from near Salisbury, where they are plentiful. I wrote my friend Mr. Pulman, the author of 'The Book of the Axe,' thinking that the cray-fish, if to be found in the county at all, would be met with in this river, or some of its tributaries; but he tells me it is not found there, but that he has found them in numbers in the streams in meadows at Maiden Newton, near Dorchester. Now, if we draw a line from this place, or say from Portland, it will cut these streams at Maiden Newton, Taunton, and end in Watchet Bay, giving an angle of about forty-five degrees west; this appears to be the line of demarcation of this species westward. I have heard it stated—and, indeed, it was mentioned in the discussion on my paper—that the river cray-fish is never found except in rivers flowing to the east; and it was also stated that they were as frequently found in rivers flowing to the west, but the country people generally believe in the former. Whether this be a legend of the west, I am not prepared to say, or whether it pertains to other parts of England; perhaps some of your correspondents will be good enough to say.—*Edward Parfitt; Exeter.—From the 'Field.'*

NOTICES OF NEW BOOKS.

'*Travels of a Naturalist in Japan and Manchuria.*' By ARTHUR ADAMS, F.L.S., Staff-Surgeon, R.N. Hurst & Blackett. 1870. 334 pp. Demy 8vo.

(SECOND AND CONCLUDING NOTICE.)

WE are now in China: my fellow-traveller, for I cannot forego the companionship of one so agreeable, has just been describing the proportions of some minute monster of the deep, and comparing him with the sea serpent. Shade of Hans Egede! ghost of Pontoppidan! can you repose in your frost-bound tombs when you hear of a sea serpent fourteen inches long? It is an outrage on common sense. Had the length been extended to fourteen hundred feet it might have been borne; if yards, it would have been triumphant; but fourteen inches! the subject is too painful. It boots little that Mr. Adams compromises the matter by stating that he obtained many of these Trichiuri at Staunton Island five feet in length: the "fourteen inches" is insuperable!

I turn with relief to a shower of insects, a subject which was formerly very familiar to the readers of the 'Zoologist,' and one which has been reproduced of late years *usque ad nauseam* by every entomologist who can hold a pen. *Coccinella bipunctata*, *Coccinella septempunctata*, *Syrphus Pyrastris*, *Syrphus balteatus*, &c., have reappeared as freshly and as vigorously as if they had never been embalmed in the pages of the 'Zoologist;' but in this instance it is a lamellicorn, a species of *Rhizotragus*, that invites our attention.

"A few nights before the landing of the allied forces at the Pei-ho an interesting phenomenon was visible, namely, that of mock moons and a double rainbow. A circumstance, moreover, which superstitious Chinamen might also regard as a portent, but which the naturalist would certainly look upon with interest, was a shower of beetles. A black species of *Rhizotragus* (a sort of chaffer) fell down upon the ships in countless numbers. Our awnings were spread, and the beetles descended continuously all the first watch. Numbers were crushed and trodden into the deck, leaving greasy patches which it required the carpenter's plane to obliterate. They afforded constant excitement to 'Belle,' a beautiful retriever, who passed the night in chasing and crunching them between her teeth. In the morning heaps of the

dead and wounded were swept into corners and under guns. Coal-black lines, following the ripples of the tide, stretched away for miles down the Gulf, formed entirely of the drowned bodies of these insects.”—P. 105.

In compliment to our sensational entomologists, and in continuation of this exciting theme, I must extract a paragraph on ladybirds, hoping it may afford wholesome *pabulum* for our scribes during the approaching winter campaign: the “countless myriads” and “Pharaoh’s host” have the ring of the true metal, and I positively envy the feelings of the first aspirant for renown who shall reproduce them before a learned and admiring audience.

“Along the margin of the shallow bay, and in the seaweedy pools left by the receding tide, were countless myriads of ladybirds, drowned, like Pharaoh’s host, in the waters of the sea. They had been blown from the opposite coast, and were now driven up by the waves in ridges miles long and in red heaps among the hollows and corners of the outcropping granite rocks. Here and there we came across a magnificent swimming crab; but these waifs and strays were just as eagerly sought after by lean, hungry cormorants and loud-screaming gulls as by inquisitive peripatetic naturalists, who only came in for a scattered mass of fragments too hard and spiky even for the maw of cormorant or gull.”—P. 107.

Let me turn to another section of the Animal Kingdom, a section hitherto not quite so exhausted as that to which *Rhizotragus* and *Coccinella* belong—I mean the *Acalephs*; these have long been a fertile theme with the producers of what is called “tall writing.” There is a species very common on our coasts which is said to be the terror of those stout-hearted Britons who occasionally delight to take a header in the briny deep. “It is the terror of bathers, and once tangled in its trailing hair, the unfortunate who has recklessly ventured across the graceful monster’s path, too oft wretches in prickly torture. Every struggle but binds the poisonous threads more firmly round his body, and then there is no escape; for when the winder of the fatal net finds his course impeded by the terrified human”—terrified human! is not that good—“the terrified human wrestling in his coils, he, seeking no combat with the mightier biped, casts loose his envenomed arms and swims away. The amputated weapons severed from the parent body vent their vengeance on the cause of

their destruction, and sting as fiercely as if the original proprietor itself gave the word of attack."

This brilliant extract from a popular Cyclopædia, Art. "Medusa," is at least equalled by a parallel passage in Wood's 'Natural History,' vol. iii. p. 745. "This harmless-looking creature is in truth one of the few inhabitants of the sea that are to be feared by bathers on our favoured shores; but its presence is so much to be dreaded that no one who has once suffered from the lash of its envenomed filaments will venture to bathe without keeping a watch on the surrounding water. I have twice undergone the torment occasioned by the contact of this creature, and know by experience the severity of its stroke. At its first infliction the pain is not unlike that caused by the common stinging nettle, but rather sharper, and with more of a tingling sensation. Presently, however, it increases in violence, and then seems to attack the whole nervous system, occasionally causing a severe pain to dart through the body, as if a rifle-bullet had passed in at one side and out at the other."—May I here interpolate the humiliating confession that I never experienced the sensation.—"Both the heart and lungs suffer spasmodically, and the victim occasionally feels as if he could not survive for another minute."

It is a comfort to know that the "terrified human" is sometimes avenged for all his suffering and all his terror; for, reverting to our author, to whom I owe an apology for this digression, I find the "graceful monster" is sliced up and eaten in that country we are accustomed to denominate "Celestial."

"But what is that mysterious object rolling and tumbling in the ripple of the tide? We observe its motions for a short time with a curious eye, but on approaching perceive that it is an immense Rhisostoma, stranded and helpless, at the mercy of the waves. It was certainly the biggest jelly-fish I had ever seen, measuring three feet across the disk. The unfortunate Medusa had not only the misfortune to be wrecked, but had to suffer the still more dire calamity of being eaten. Chinamen came down, like Riff pirates, or Cornish wreckers, to the scene of the disaster, and cut off huge slices of the firm translucent blubber, and carefully wrapping them in cloths carried them away for gastronomic use. Doubtless their insipid mess of boiled rice was greatly improved thereby at evening chow-chow. This is the only instance I have known of any of the Acalephæ being used as food."—P. 117.

Our traveller now lands on a projecting point on the eastern side of the Gulf of Liau-tung, forty miles north of Hulu-shan Bay, where terminates the Great Wall of China, that "wonder of the world." Here the exploring party left their boat and proceeded on foot across a sandy belt of land, with a chain of fresh-water ponds with muddy spaces between them, where the curlew and the whimbrel, the plover and the snipe, found ample feeding-ground, plunging their beaks into the congenial ooze, and the herons, those gloomy monopods, wait in patience the approach of the scaly prey.

"Nearer the sea long salt-water lagoons and shallow swamps extended, covered in some parts with a white-flowered sea lavender and the blue star of *Aster Tripolium*. From these the great white heron slowly rose, with bright yellow bill pointing out in front, and long black legs stretched out behind, and after a few lazy flaps with his huge curved wings, alighted again to resume his interrupted fishing. Equally familiar was his yet larger cousin in gray, the common heron, and, standing on one leg, her loose snowy plumes waving in the breeze, the elegant white egret dreamed of frogs and fishes. Sandpipers and greenshanks ran piping and probing about the margin, and gulls and little terns screamed, quarrelled and hovered over the heads both of bipeds and birds. As I stooped to collect some specimens of pond-snails in one of the clear fresh-water ponds with a bottom of sandy mud, my attention was arrested by an object which at first sight I regarded as an unknown genus of bivalve Mollusca, but on placing it in a bottle of water the real nature of the creature became revealed. It was an Entomostrakon. As a whale among minnows, so, said I, is my new genus among water-fleas; but again I was mistaken. I had not fished long before I brought to light a veritable *Apus*, or shield-shrimp, and I saw at once that my supposed new genus was the young of this creature, thus illustrating very prettily the law in the development of organized beings, that the transition state of a higher form will represent the permanent condition of genera lower in the scale of being. I cannot find any account of the metamorphoses of the *Apodidæ*, or whether it is known that in the young state the shield is folded on itself longitudinally in the form of a bivalve shell which entirely conceals the head, body and feet of the animal. There is but a single large black eye in these young ones, situated *Polyphemus*-like in the middle of the forehead. The very young larvæ are of a pale horn-colour, and swim in a steady manner forwards, the ventral

edge of the shell being directed downwards. As they move through the water they partially expand and close the valves of the shell. Older and larger individuals are olivaceous, and are fond of lying on their sides in the sand at the edge of the pond, now and then spinning round and round by means of their protruded tail. The adult of Kroyer's shield-shrimp, as it may be called, keeps in deep water, and is voracious and predatory, not confining his attention to small things in the water, but even feeding on drowned dragon-flies."—P. 121.

Let us now pay a visit to the Korea, that *terra incognita* of distant Europeans, that square block of land that seems in our maps to hang down between the Yellow Sea and the Sea of Japan, and with the natives of which the doctor appears to have been pleased, notwithstanding the somewhat discouraging impression made by the first interview. "We found them kinder than was warranted by their looks." One of their customs, noticed by the previous traveller, Hamel, Mr. Adams thinks worthy the imitation of Christian nations, and that is the care which sons take of their fathers. "When a father is four score years of age, he declares himself incapable of managing his estate and resigns it to his children. Then the eldest, taking possession, builds a house at the common expense for his father and mother, where he lodges and maintains them with the greatest respect." This is doubtless commendable in both father and son, but it has another teaching which our doctor seems rather to have overlooked; and that is that the prolongation of human life to four score years is spoken of as an occurrence that needs no comment. But I must allow the doctor to discourse of his doings in his own pleasant manner, and not introduce reflections of my own.

"One afternoon, while lying at anchor in the safe and pretty port of Mah-lu-san, one of the Korean group, there was a seining party, which I accompanied. The day was lovely; the whole face of the country was bright and smiling; the barley was ripe in the fields, the hills were covered with a varied green, and the little rippling waves of the clear water of the bay were dancing in the sun. Stretching far away to the north and to the south were groups of dark-blue islets, rising mistily from the surface of the sea—glimpses of that mysterious Archipelago, among the unknown islands of which I cruised in by-gone years. The sea was covered with large picturesque boats, which, crowded with Koreans in their white fluttering robes, were putting off from the adjacent villages, and sculling across the pellucid water to

visit the stranger ship. We chose a sheltered bay, and commenced paying out the seine. Koreans, seated in groups bare headed, or wearing their broad-brimmed hats, were smoking their pipes in silence, as they inquisitively observed our proceedings. The rooks in the tall and glorious trees that fringed the bay cawed loudly with indignant remonstrance at the unwonted intrusion upon their quiet haunts; while the sailors, to the tune of their popular songs, hauled in the great net, in which upwards of one hundred and seventy pounds of bream and other fish were taken. I, of course, took the opportunity while here of pursuing, with my usual zeal, my natural-history inquiries. Among the denizens of the sea I noticed toad-fishes, devil-fishes, sea-horses and swimming crabs. I also noticed a great many individuals of a singular viviparous fish, most of which had three or four living young ones in their bellies. I believe the fish belongs to a genus described by Temminck under the name of *Ditrema*. I also found, as I strolled away from the seining party, a singular species of *Arum*, with long curling horns extending from its lurid spathes. The natives were just as friendly as when I visited the group in 1845. An old man with a basket of sea-weed on his back stopped me, and would fain persuade me to taste of his Laminarian dainty. A little further on, a young lad made a friendly advance by biting off a portion of lily root and offering me the remainder, while a small boy brought me wild raspberries strung upon a straw.

“On one occasion, while out with my friend Buckley in search of adventures, we observed a sandy mud-flat in the distance, on the other side of which was a breakwater formed of heaped-up boulders. On approaching nearer, we were struck with a peculiar blue appearance of the sand-flat, which, strange to say, on our arrival suddenly disappeared, but not before the cause of the peculiar phenomenon revealed itself in the form of thousands of struggling, round-bodied, blue crabs, which were frantically endeavouring to hide themselves in the yielding sand, for such is the remarkable habit of *Scopimera globosa*. The wave-worn stones of the breakwater were partly concealed by tangled vines and the creeping stems of *Convolvulus maritima*. On this occasion we had to do battle with a snake. While Buckley was proceeding in advance, I observed that he suddenly became excited, stopped, and beckoned, pointing emphatically right before him. Sure that something must be wrong, I hurriedly rushed to his assistance, just in time to cut off the retreat of a large mottled snake as he was trying to escape among the tangled vines

and boulders. A slight blow on the back arrested his progress, paralyzing the after part of the body. He turned fiercely round, hissing and protruding his long, black, fork-like tongue, we both belaboured the unfortunate reptile and soon finished him. An examination of his mouth showed him to be a snake of a highly venomous character, the poison-fangs being truly formidable."—P. 153.

This little excitement over and gone, we once more survey the surface of the country and peacefully examine its productions and its characters. In Deer Island our traveller's spirit seems to have taken great delight: it is green and hilly, covered with low trees and full of loose moss-grown lichen-covered stones: rills at which the hog-deer came to drink and the wild pigs to feed on fallen acorns: the ancient weather-stained masses of rock are here often heaped upon one another in the wildest confusion, and are beautifully encrusted with lichens of every hue, frosty white, pale green, rusty brown and bright orange. This is the dwelling-place of the "harlequin" toad, a fellow that rejoices in a jacket of the most vivid scarlet mingled with black: the rain, with which the bright rocks were still dripping, had brought out the worms and other delicacies on which these brilliant fellows feed, and caused them to exhibit themselves to perfection on the lichen-stained stones, which vied with them in the gaiety of their colouring. Here also is the home of the musk-deer, and notwithstanding the rugged face of the country and the abundant coverts, no less than nine fell to the rifles of the officers of the "Actæon."

Having surveyed the greater portion of the Gulf of Liao-tung, the ship arrived at the mouth of the river of the same name, and found there a town of considerable importance, the staple produce of which seemed to be pork.

"On going ashore we found ourselves immediately in the land of pigs, and encompassed by the mud and dirt congenial to these animals. The poor porkers are killed and cured here for the markets of China, and everywhere we were surrounded by numerous bands of victims destined for slaughter. Vicious, long-headed, and obstinate, incredible numbers of them were being driven through the muddy streets, making the place resound with their sharp and piercing cries. Men in huge leather boots were staggering under sides of bacon; large flat carts were heaped with brown flitches; boys were reeling under the weight of enormous hams; and boars' heads seemed to gaze

reproachfully at you on shop-boards and out of windows. In short, the whole town was filled with evidences of the thriving trade by which the inhabitants gained their living.”—P. 171.

Proceeding to Dagelet Island, our author bears willing testimony to the fidelity of La Perouse's description: this island consists chiefly of a single mountain peak clothed with trees from the shore to the summit. Here the doctor's admiration was divided between the scenery and the sea-bears.

“ We saw the grand central peak towering four thousand feet above us, partially enveloped in clouds. Around its base were huge detached rocks, some of them four or five hundred feet high, one resembling a sugar-loaf, and another a rude arch. Within a little distance from the shore numbers of sea-bears, of a reddish brown colour, came up repeatedly and barked around the boat. The mad pranks and uproarious conduct of these strange ursine creatures offered a striking contrast to the placid demeanour of the gentle *Phocæ*, or common seals, which only raised their round heads above the water, wonderingly gazed around, and quietly sank again below the surface. Shoals of black fish rose up further off, baring their dark rounded backs; while several right whales were spouting in the far distance. Some flying fish leapt from the water, pursued by a large fish of the mackerel tribe, a noticeable fact, for seals and flying fish are not usually seen together.”—P. 174.

It is remarkable that La Perouse, who described this beautiful island so truthfully, never landed there. One would have thought the temptation too great to be resisted: be this as it may, it is pretty certain that none of the officers of the “*Boussole*” went on shore, and it appears that Mr. Adams and his brother officers were the first Europeans who had ever set foot on the island. They made their way by dried-up water-courses up the sides of the mountain, and observed in this distant land the common wild thyme, the yellow stone-crop, the figwort, junipers and sycamores, while the familiar cormorants, hawks, gulls, pigeons, blackbirds and sparrows were the only birds, and the only indication of a mammal was the skull of a cat.

A similarly British character pervades the herbage in a charming little bay on the Manchurian coast, which was next examined. Cattle and horses were grazing in a pasture composed of birds-foot trefoil and grasses not to be distinguished from those of England; the very dandelion was the same, and in the deposits left by the earth were

found *Aphodius*, *Geotrupes* and *Onthophagus*. The novelty as well as the interest of this narrative consists in the finding and recording such familiar objects in so unfamiliar a country. Here, however, in company with the other Coprophagi, was a species of *Sisyphus*, and this claims closer attention, and, with the ardour of a Power, our entomological traveller proceeded to gather the *Sisyphi* into his collecting-bottle: imagine him on his knees with digger in hand, gazing with real enjoyment on every beetle that has upturned. But

“What is that dark body moving steadily and slowly across the plain? It is a herd of cattle commanded by a patriarch bull, with a great black head, reddish eyes, short horns, and a dewlap that nearly touches the ground. We are serenely engaged in disintombing *Sisyphus*, and, just looking up, we continue our occupation. The moving mass of cows and calves, led on by the patriarch, steadily advances. There are many stoppages, much pawing of the ground, and some low bellowings, but—onward it comes. Prudence suggests a retreat; courage and a desire for more specimens of *Sisyphus*, urge our remaining. So, putting on an indifferent air, we go on turning over the sandy deposits. This seems to have some effect on the bovine party. The patriarch bull, his admiring cows and offspring, the playful calves, make a dead halt and stand staring. Thus we continue while a shard remains unexamined, when we rise, and, resuming our stick, stroll with a would-be careless air towards the beach. The patriarch bull with the great curly head and dewlap, and all his wives and concubines, follow us down to the water, where, luckily a boat being handy, we leave them.”—P. 179.

As our doctor passes from place to place, and touches on each with a light and cheerful pen, just giving an understanding glance and nothing more at what he sees, there is some difficulty in accompanying him, and one feels sadly the want of a good map showing his course. Probably he concludes that his readers are well up in the geography of Manchuria, and are able to locate with precision such bays as Siowu-hu, Olga and St. Vladimir, but this cannot be the case with readers in general, and certainly is not with myself: beyond a general and vague idea of the coast line, and a school-boy recollection where to look for the Korea and Saghalien, I must plead guilty to a very superficial knowledge of the ship's course, and of the names of places which now follow so quickly in succession: Risiri, Rifunsiri, Todomosiri, Tsu-sima, Aniwa, and so forth, come tumbling one over another

without imparting any precise idea of their whereabouts. I make this confession rather with a view to disarming the critic who might otherwise delight in pointing out that I had erroneously placed Rifunsiri to the east instead of the west of Todomosiri, or *vice versâ*, and so elicit great cachinnation from a pseudo-philosopher to whom the two places were equally unknown. I can only say, therefore, that it was somewhere on the coast of Manchuria, and probably near Olga Bay, that the first lieutenant of the "Actæon" swapped his coat for a deer-hound. He (the hound, not the lieutenant) had a splendid brush for a tail and a fawn-coloured skin, and excited the admiration of the "Actæon" by quarrelling with another animal of the same species over a fish's head. It was love at first sight: the lieutenant determined that Quilee—that was the name of the hound—should be his own. He produced his dollars, but the poor fisherman refused; not insensible to the value of the proffered coin, but preferring his dog to the shining silver. Recklessly the lieutenant stripped off his coat and offered to barter it for Quilee: the coat conquered: the Manchu was overcome: the gold lace and the brass buttons were too much for him: Her Majesty's uniform was transferred to the Manchu and Quilee to the "Actæon."

Pass we on to the cemetery of seals in Aniwa Bay, to the north of Cape Notoro, in Saghalien. The bay is "composed"—I use the author's expression—"of rounded rocks and drifted shingle." It is here that the aged and infirm seals come to breathe their last in peace; here they seek refuge from the teeth of their fellow-creatures: sheltered by huge boulders of granite and concealed by grass and reeds, they here find an open grave: their bones were strewn around, and the only sounds that interrupted the silence of this "last rest" of seals were the cries of wild swans passing high overhead and the caw of a rook pursued by an unrelenting falcon.

The little island of Todomosiri is situated on the north side of the west entrance to La Perouse Strait: this is equally desolate with Aniwa Bay: it is a huge mass of trachyte rising fifteen hundred feet abruptly from the sea: here the only living objects were a large brown gull feasting on offal, a lonely cormorant seated with outstretched neck and expanded wing on a salient angle of black crag; a little hawk soaring high above the summit; oysters, mussels and limpets; and a solitary Silpha: but I am omitting the seals: strange omission, it is like the play of Hamlet with Hamlet left out. Seals were everywhere diving and swimming and floating, some with their round bullet-heads above the water, others far beneath the surface. The bones of some

were bleaching in the wind; the flesh of others had been torn off by gulls and cormorants: the dirt and stench below, and the huge weird rocks towering above produced an impression anything but agreeable.

“We anchored pretty close under the lee of the island, directly opposite a little white shingly cove, with patches of long coarse reedy grass in the background. This is a favourite resort of the seals, and nowhere can their manners and customs be more favourably studied. The old gray bulls rear the fore part of their bodies and slowly sway themselves from side to side, meanwhile throwing up their great heads and bellowing continuously. The cows and their calves are congregated together in a coterie by themselves; and reposing on the out-lying rocks, in attitudes anything but graceful, is an entire seraglio of young females. The noise made by the seals during the night is something fearful. One might imagine it to be something like the croaking of Brobdignag bull-frogs varied at intervals by deep growls and sharp cries, loud snortings, dissonant brayings, and other sounds of a more unearthly kind. Three individuals fell victims to the prowess of our sportsmen, and were towed on board in triumph.”—P. 226.

The account of Ainos is replete with interest; the exact correspondence of the statements now published and those made by La Perouse, two hundred years ago, is very striking: the litter of blind puppies, the barking mother and hiding woman, detected, hunted to earth, as a fox-hunter would term her hovel, are all reproduced, and will hereafter serve me for a text when winding up my “Death of Species.” These ancient people at any rate are not progressive; they seem slowly and placidly folding their garments around them, and, like Bewick’s worn-out horse, to be “waiting for death”: their only occupation is the capture of salmon, and these noble fish, too good to eat, they sell to the Japanese, “reserving for themselves the stench of putrefaction, which adheres to their clothes, their houses, and to the very grass which surrounds their villages.” So wrote La Perouse, and Mr. Adams confirms it to the very letter. These people have nothing in common with their neighbours, the Japanese: it was thought probable they might speak a language somewhat resembling Japanese, and so belong to the same linguistic family: this has been entirely disproved, and M. de Rosney observes, in his ‘Introduction to the Study of Japanese,’ that “the idea is completely inadmissible.”

We pass on to Japan, and take leave of our accomplished traveller at the now familiar town of Nagasaki, leaving him to study the poodles, the nuthatches, and the salamanders, and thanking him most sincerely for a delightful book, written in the best vein of that good humour which is ever cheering to the reader, and with that intelligence which cannot fail to instruct while it amuses and delights.

“ One of the most curious sights in Nagasaki is the dog-fancier’s shop, where the far-famed little poodles are sold. You enter a large apartment, where, under the care of a young and handsome woman, are specimens of the canine species of all agès, from the blind struggling puppy to the dog of elderly and respectable appearance. The dog-fancier’s wife, who had a sick poodle in her arms, said to me, ‘ I have no children, so I tend and care for these small dogs,’ for they are all of the same diminutive breed. It is a singular fact, but they thrive best upon hard dried salmon, which is carefully scraped for them by their kind mistress. There were more than forty dogs in her keeping, and she informed me that last year she lost thirty at one time from influenza. The song birds in the shop are also very pretty, as are the nuthatches, which are kept in very tall cages, with an upright stick in the middle, at the top of which is a cross-piece with a notch, in which the bird places the nut or berry, which he hews with his pick-like bill till he gets at the kernel. Instead of the more yielding fruit of the yew, which is the usual food of the nuthatch of Japan, at one time I substituted hard hazel-nuts. As the bird was unable to crack these, he placed them one by one in his water-glass, evidently with the notion that they would in time become softer—an interesting proof of intelligence on the part of these birds. Here also I saw several fine specimens of *Sieboldia maxima*, the gigantic salamander of Japan. They are kept in large dark tanks, and are as ugly reptiles as can be well imagined; black sluggish creatures with warty skins, flat heads, no eyes worth mentioning, blunt noses, and short sprawling legs. They are said to come from the mountain streams of Kiusiu, but in reality they are from the neighbourhood of Osaka, in Nippon. The only kind of salamander I saw in the shallow streams which are numerous about Nagasaki, was the little dingy triton, with an orange-mottled belly, very similar to the water newt of Europe. I bought a couple of *Sieboldias* for the captain, and had them conveyed on board with a plentiful supply of small live eels for their maintenance during the voyage to England. One of these creatures died in the transit,

and his bones are now in my museum; the other, I believe, is still to be seen, the 'admired of all admirers,' in the reptile room of the Zoological Gardens. When they had consumed all the eels, small pieces of raw meat were given them, and really, in their purblind way, they seemed to relish them as much as they did the slippery living prey. One of the sailors, when exhibiting them to his gaping companions, incautiously handled the big one, which, obviously indignant, turned suddenly and severely lacerated his hand. His comrades, believing the wound to be dangerous, for they imagine these reptiles to be very venomous, showed great sympathy for him in his calamity, but beyond the temporary inconvenience, no serious consequence resulted."—P. 277.

EDWARD NEWMAN.

Ornithological Notes from Norfolk—January to September, 1870.

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

(Continued from S. S. 2058.)

JANUARY.

Forktailed Petrel.—One picked up dead at Gooderstone early in the month; also a storm petrel at Hasboro.

Green Sandpiper.—A single bird killed at Cawston on the 1st.

Kingfisher.—In my previous notes I referred to the large numbers of these birds killed during the autumn and winter of 1869. One bird-stuffer in Norwich received thirteen, from various parts of the county, during the first week in January of the present year.

Bittern.—As usual not uncommon during the sharp weather. A fine female was killed at Wroxham on the 6th; another on the 8th, at Catfield; and a third at Wramplingham, on the 27th; also one at Weeting, on the 30th.

Shore Lark.—See separate notice of these birds at the conclusion of these "Notes."

Smew.—January 15. An immature male and two young females.

Blackbird.—During the last week of this month I saw two male varieties, prettily mottled with white, and a female with the secondaries dull white.

Peregrine.—January 18. A fine adult female shot at Dersingham; one at Beachamwell; and two at Hunstanton early in the month. One killed whilst feeding on a gull.

Siskin and Redpoll.—In spite of the severity of the weather there has been a remarkable absence of siskins this winter, as remarked by our birdcatchers; and redpolls of both species have been scarce.

Gray Wagtail.—Several observed about the drains in the meadows at Keswick, near Norwich, previous to and during the frosty weather.

FEBRUARY.

Bittern.—Two purchased in the Norwich fish-market about the first week of this month, and another on the 12th.

Wild-fowl.—As evidences of the extremely severe weather of the previous week, our fish-market, on the 12th, contained scaups, golden-eyes, wigeon, and tufted ducks, with fine old male birds of each species, common and blackheaded gulls, and large bunches of dunlins, larks, fieldfares and greenfinches. Immense numbers of the common scoter were observed off the coast, and on the larger broads the fowl, chiefly wigeon and tufted ducks, collected in considerable quantities on the ice, and were therefore extremely difficult of approach.

Shieldrake.—An unusual number of these handsome fowl were killed during this month in various localities. One at Hickling on the 10th; one on the 11th at Stalham; three at Gunton, near Lowestoft, on the 12th and 15th; two at Salthouse on the 14th; one at Cromer on the 15th; and on the 25th two at Cley.

Goosander.—A fine adult male, with salmon-tinted breast, shot at Stalham on the 10th; young birds and females not uncommon during the hard frosts. Several adult birds were seen on Fritton Lake, near Lowestoft, towards the end of this month.

Redbreasted Merganser.—Besides immature birds, several magnificent old males were killed about this time. On the 21st I had one sent me, from Cley, in perfect plumage. On the 18th another was shot on Breydon, and two more at Cley on the 26th.

Ruff.—See Mr. Gunn's note in the 'Zoologist' (S. S. 2103).

Brambling.—Very plentiful during the severe weather. On the 13th, with a driving N.E. wind, and a deep snow on the ground, a small beech plantation close to Norwich was full of these birds, which, with chaffinches, titmice and other small birds, fed on the beech-mast, wherever exposed by the wind drifting the snow from the ground in places. Blackbirds and thrushes suffered considerably from cold and hunger.

Wild Geese.—A few Brent geese in the Norwich market, but no other species throughout the winter.

Hen Harrier.—An adult female at Yarmouth on the 18th.

Little Grebe.—As usual during severe frosts, dabchicks had a hard time of it, and many were shot in the smaller streams. On the 26th one was found dead, with a "miller's thumb" sticking in its throat.

Blackthroated Diver.—A female, with partial black throat, killed on Breydon, on the 19th, and another, immature, on the 23rd. Young redthroated divers not uncommon on the rivers and broads.

Merlin.—An adult female merlin shot on the 12th.

Sclavonian Grebe.—Several examples killed in full winter plumage.

Gulls.—The heavy winds that drove these birds inland about the middle of this month caused a considerable slaughter by the gunners. Some two dozen were brought into Norwich by one man, about the 19th, consisting chiefly of common and blackheaded gulls, with a few fine specimens of the great blackbacked and herring gulls. It was about this time that the extraordinary influx of little gulls appeared on our coast, which I shall describe in a separate notice.

Gray Phalarope.—A single specimen shot at Cley early in the month.

Purple Sandpiper.—A single bird shot on a common near Dereham, in quite an inland situation, probably driven in by the gales.

MARCH.

Gray Shrike.—A male shot at Ringstead, on the 2nd.

Spotted Crake.—An unusually small specimen of this rail was shot at Thorpe, near Norwich, on the 3rd—an early date for this species, which seldom appears before the end of March. The beak measured only $\frac{3}{4}$ ths of an inch; total length of bird $8\frac{5}{8}$ inches; extent of wings $13\frac{3}{8}$ inches.

Sclavonian Grebe.—See Mr Gunn's note in the 'Zoologist' (S. S. 2225).

Hooper Swan.—Only three wild swans are said to have been seen on Breydon during the winter. A fine bird was shot at Oulton, near Lowestoft, on the 4th.

Bittern.—Another specimen in our market on the 2nd. Towards the middle of the month one was heard "booming" on Hoveton Broad, where a pair have nested the last two or three years.

Blackthroated Diver.—A blackthroated diver, immature, shot about this date.

Goosander.—A fine pair shot on Gunton Lake, near Cromer, on the 7th, and two females on the 20th.

Brent Goose.—Several examples in the Norwich market between the 12th and 27th.

Peregrine.—A fine old female shot at Gunton on the 10th.

Wild-fowl.—Several fine old male pochard, wigeon, tufted and scaup ducks in the market late in this month.

Garganey.—A beautiful adult pair shot at Gunton, near Lowestoft, on the 25th.

Sky Lark.—Four or five buff-coloured varieties of this species have been killed lately.

Puffin.—A specimen sent up from Cley on the 30th, having the small brown narrow beak of the immature bird.

Rednecked Grebe.—A magnificent male, in full breeding plumage, was shot on Easton Broad, near Southwold, Suffolk, on the 28th.

Shoveler.—Several adult birds, of both sexes, seen about this time; three males were sent up to Norwich on the 28th.

Hawfinch.—Three adult males shot, on the 28th, at Hathersett, near Norwich, where they would certainly have nested.

APRIL.

Black Redstart.—See Mr. Gunn's note in 'Zoologist' (S. S. 2222). The first adult male known to have occurred in Norfolk.

Bittern.—The bird at Hoveton still heard "booming" at times up to the 10th of this month.

Jack Snipe.—Extremely abundant during the first week of this month. About two dozen were brought in to one birdstuffer—evidence of a large separate flight of these birds.

Black Tern.—One shot on the 25th, and a pair, male and female, on the 28th.

Garganey.—An adult male shot at Brunstead on the 23rd.

Osprey.—An old female shot, near Beeston Hall, Norwich, on the 19th.

Peregrine.—A young male killed early in the month.

Great Spotted Woodpecker.—One shot at Kirby on the 12th.

Kite.—A fine female taken at Plumstead on the 22nd: now very rare in Norfolk.

MAY.

Little Bittern.—An adult female is said to have been shot at Fincham, on the 2nd, by a gamekeeper of Sir William Ffolkes, and preserved by Mr. Wilson, of Lynn.

Ring Ouzel.—One shot on the 10th, and others seen.

Spotted Crake.—Another specimen shot at Thorpe, near Norwich, on the 2nd.

Wood Sandpiper.—See Mr. Gunn's note (Zool. S. S. 2225).

Garganey.—An adult male, at Stalham, on the 12th; and another from Sutton.

Great Spotted Woodpecker.—An adult female shot at Wroxham, on the 21st.

Ruff.—A ruff and reeve were shot at Feltwell Fen, on the 9th, out of a flock of fourteen or fifteen, but of which only four appeared to be ruffs.

Turtle Dove.—Extremely numerous this season in all parts of the county. At Keswick and other places near Norwich I have observed them busily feeding on the fallows, particularly near the fences; and one which I dissected had the crop and stomach filled with the seeds of plaintain, wild trefoil and persicary.

Swallow and Martin.—Several of these birds, as in the spring of 1869, were picked up dead previous to the commencement of the hot dry weather. A broadman at Surlingham tells me that on the first hot night, about the second week in May, the water was so densely covered with sand martins he could scarcely row without striking them. They flew all round him like bees, and fed on the insects that he disturbed with his oars, apparently starved into a shocking state of tameness. He had never seen them in such numbers before, but most of them had left by the next morning.

Oriole.—An adult female shot at Fincham, during this month, was preserved by Mr. Baker, of Cambridge. See also Mr. Gunn's notice of one (Zool. S. S. 2221).

JULY.

Wood Sandpiper.—An adult pair, male and female, killed on Breydon, on the 18th, and another male at Caston on the 30th.

Spoonbill.—An example was seen at Salthouse on one or two occasions this month.

Hen Harrier.—Mr. Gunn received a nest of four young in the down, from Hickling, on the 23rd, two of which were forwarded alive to Lord Lilford, but they unfortunately died through delay on the journey. Both this species and Montagu's harrier only occasionally nest in Norfolk now-a-days.

AUGUST.

Wood Sandpiper.—These birds, usually very rare in this county, have been met with in several instances this autumn. On the 3rd a bird of the year was shot in some marshes at Cley, and one or two others were seen; and on the 6th, near the same spot, five more were killed, making the family group of two old and four young ones. At Beeston, near Cromer, the week before, some thirty or forty sandpipers (whether green or wood was not ascertained) frequented the margins of a large duck-pond.

Montagu's Harrier.—Three immature birds of this species, but full-fledged, were also shot at Hickling, on the 3rd, and sent to Mr. Gunn on that date, and a fourth about three days later. These, like the hen harriers, had been bred in that neighbourhood; two proved to be males, one a female, and of the fourth the sex was not noticed.

Greenshank.—An immature female shot at Hingham, on the 11th, and another at Hickling, on the 16th; another seen with the last. Stomachs filled with small aquatic insects.

Norfolk Plover.—A male killed on the coast, at Hunstanton, on the 10th.

Dotterel.—Four shot by a shepherd at Feltwell, on the 26th.

Skua.—An immature specimen, apparently of Richardson's skua, was shot at Blakeney on the 27th.

Great Snipe.—A female, immature, shot at East Ruston, on the 31st.

Little Stint and Reeve.—Two immature little stints and a young reeve were shot at Blakeney on the 31st.

Marsh Harrier.—An immature female, with straw-coloured head, was killed at Catfield on the 30th.

HENRY STEVENSON.

Norwich, October 10, 1870.

Erratum.—In the final paragraph of my last communication (S. S. 2058) for *Swan* read *Smew*.—H. S.

Shore Larks on the Norfolk Coast in the Winter of 1869-70.

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

IN the March number of the 'Zoologist' (S. S. 2058) I recorded the occurrence of five birds of this species at or near Yarmouth,

between the 7th of November and the 14th of December, 1869. These, it would seem, were part of a considerable flock which had reached our shores, and become scattered, by the persecution of gunners, into small parties of five or six, as between the 12th and 15th of January of this year no less than twelve specimens were sent up to Norwich for preservation from the neighbourhood of Salthouse, and two others, I understand, were too much shot to be worth preserving.

A gunner at Salthouse, who obtained most of the examples killed there, informs me that he saw the first one during the frosty weather which began about Christmas Day, and after the weather broke up he never saw more than five together. They frequented the low marshes that are occasionally flooded by the sea, but were then dry: they kept by themselves, and did not consort with other small birds on the beach. All had left by the 18th of January. The stomachs of three birds (one male and two females), sent me on the 12th, were filled with black seeds, minute pebbles and grit.

Of this species, at one time considered a great rarity in Norfolk, upwards of *thirty-eight* specimens have been killed since the first example was procured in 1830, and many others have been killed in Suffolk, which scarcely agrees with the statements made in recent letters in the 'Times' as to the very rare occurrence of the shore lark in England.

In all cases these birds have been met with in close proximity to the coast, during the months of November, December and January, or on their return northwards in March and April. It is noticeable also that of eleven specimens shot between 1830 and 1862 all proved to be males but two; whilst of those more recently obtained by far the larger number have been females, and most of them young birds. This would almost seem to indicate that the sexes feed in separate flocks in winter, although four pairs killed in the winter of 1866-7 were undoubtedly male and female respectively; but these were all old birds.

Early in April last an adult female was also killed at Yarmouth, which probably marks the time of the passage northward of the remnant of the flock that had visited us during the previous winter months.

HENRY STEVENSON.

Norwich, September 27, 1870.

Notes on the Sea and Shore Birds of Aldeburgh.

By J. G. TUCK, Esq.

July 23. Shot a lesser blackbacked gull, in full adult plumage; also, out of a small flock, a dunlin in full summer dress. The young dunlins have already appeared on the coast.

August 1. Shot the first snipe: some had been seen the previous week. Met with a small flock of wood sandpipers to-day in the mere, and killed one; three others fell to my gun during the next fortnight: the note of this bird is peculiar, somewhat resembling that of its congener, the green sandpiper, but shriller: the two species much resemble each other on the wing, but the wood sandpiper may be recognized by its frequenting the most central part of the mere, and generally rising in small flocks of six or eight, whereas the green sandpiper is almost invariably found by the edges of rivers or ditches, and it is an uncommon occurrence to meet with more than a pair together: in this it resembles the common sandpiper, which is common at Aldeburgh in the summer, but does not breed there.

August 3. A very fine green sandpiper, in perfect plumage, was shot by a friend, and presented to me.

August 6. Two more green sandpipers came into my possession, one an immature bird, the other an old bird in very strong moult. This day I obtained a very young razorbill auk, which was shot on the river.

August 15. This day I saw a small flock of greenshanks and killed one. A gentleman staying in the town shot a splendid adult great crested grebe, while swimming in the river close to Slaughden Quay: it was beginning to assume the winter dress.

August 24. Found a large flock of curlew sandpipers in the mere, and killed several of them. All the specimens I obtained were young: these birds have a strong fishy taste.

August 26. The mere this morning was very full of different species of waders. I procured the curlew sandpiper, the turnstone, the knot and the bartailed godwit—all immature, except one knot, which was in nearly full summer dress.

August 29. A friend killed a young ruff and six curlew sandpipers at one shot. I picked up a very fine male turnstone dead in the mere: the contrast between the adult male and the young, which are plentiful, is very striking.

August 31. Shot a greenshank and an adult female shoveler duck.

September 6. Fell in with a small flock of little stints: they were frequenting the margin of a large pool, and were very tame, but having large shot I only obtained one.

September 8. Shot two more little stints and a Temminck's stint: when one of these birds is shot one or more of the rest will often flutter round it and afford an easy shot: this I thought was only the case when one of a pair was shot, until I killed a little stint in the act of hovering over the Temminck's stint as it was lying dead. To-day I had the pleasure of seeing, in the flesh, the alpine swift which was mentioned in the 'Zoologist' for October (S. S. 2345): its companion has not been seen again. I received an adult curlew sandpiper, in partial summer dress, to-day.

September 10. Three large geese have been frequently seen about the Thorpe Mere lately, where they have been associating with the common domestic species. One was shot to-day, and proved to be an adult male graylag goose, in full plumage. The breast is marked with small black streaks, somewhat resembling the whitefronted goose; but the much greater size, together with the colour of the legs, identifies the species. This is one of the rarest geese on this coast.

September 13. Little stints are unusually plentiful, and associate with the curlew sandpiper and dunlin: I have obtained the three species at one shot.

September 19. Two immature sheldrakes, out of a party of six, were shot in the mere to-day.

October 7. Saw a Royston crow near Norwich.

October 8. Received a snow bunting from Aldeburgh.

J. G. TUCK.

Tostoch House, near Bury St. Edmunds,
October 13, 1870.

Extracts from a Memoir intituled 'A Monograph of the Alcidæ.'

By ELLIOTT COUES, A.M., M.D.

(Continued from S. S. 2334).

Genus URIA (*Moehr.*), *Brisson.*

Bill much shorter than the head, about equal in the tarsus, straight, rather stout, moderately compressed; culmen at first straight, then

rapidly deflected; rictus straight, except just at tip; gonys ascending, straight, short, about half as long as the culmen. No groove in sides of upper mandible near its tip; commissural edge of upper mandible scarcely inflected. Nasal fossa wide, long, deeply excavated, partially bare of feathers, which do not wholly obstruct the nostrils. Feathers extending on sides of lower mandible with a salient rounded outline. Wings and tail very short, the latter contained about two or two-thirds times in the length of the former from the carpal joint to the end of longest primary; tail slightly rounded. Tarsus much compressed, entirely covered with polygonal reticulations, somewhat scutelliform on the inner aspect; slightly shorter than the middle toe without its claw. Outer and middle toes equal in length; the claw of the former much smaller than that of the latter, tip of inner claw just reaching base of middle one. Claws compressed, moderately arched and acute; the outer one grooved along its outer aspect, the middle one greatly dilated along its inner edge. No postocular furrow in the plumage.

In the preceding diagnosis the characters of the genus are so drawn as to exclude the large species of *Lomvia*. Few writers have made this generic distinction, for which, notwithstanding, there is abundant reason, as may be seen upon a critical comparison of the two types of form, and as will be satisfactorily demonstrated at length under head of *Lomvia*. It need only be noted here, that the structure of the bill and feet are in many respects very different in the two genera.

The genus as here framed comprehends three distinct species, intimately allied to each other.

Disregarding other and less prominent though very valid distinctions, the three species of *Uria* may be at once recognized by the following characteristics:—

A large white space on wing, entire.	No white about head.	- 1. <i>Grylle</i> .
A large white space on wing, partially divided by a black line.	No white about head.	- 2. <i>Columba</i> .
No white on wing.	Feathers around and behind eye and at base of bill, white.	- 3. <i>Carbo</i> .

Or they may be still more briefly and quite as satisfactorily characterized thus:—*Carbo*, upper and under surfaces of wings black; *Grylle*, upper and under surfaces of wings white; *Columba*, upper surface of wings white, under black.

The division of the white mirror on the upper surface of the wings of *Columba* is not the most important point of coloration, though the

most obvious, upon casual inspection, by which the species differs from *Grylle*. A still stronger diagnostic character lies in the absence of white on the under surface of the wings.

Uria Grylle (Linn.), Brünn.—Habitat: European and American coasts and islands of the North Atlantic; very abundant. Arctic Ocean. Spitzbergen, Iceland, Greenland. On the American coast, in winter, south to New Jersey coast. Rare or accidental in the north Pacific, where replaced by *Columba* and *Carbo*.—? Kamtschatka (Mus. Pays-Bas, fide Schlegel.*) Herald Island, Arctic Ocean (Cassin, Pr. A. N. S., Ph., 1862, p. 323); Spec. in Mus. Acad. Philad., Smiths. Inst., Bost. Soc. Nat. Hist.; Essex Inst.; Cab. G. N. Lawrence; author's Cab.

Adult, summer plumage.—Bill and claws black. Mouth, legs and feet brilliant vermilion-red, tinged with carmine. Entire plumage plumbeous or fuliginous black, with a tint of invisible green. Wings and tail pure black, the former with a large oval space on the upper coverts, all the under coverts and the subscapulars pure white.

This perfect breeding plumage is temporary, and lasts but a short time. Very many individuals do not assume it until June, and it is usually retained only during this and the succeeding month. Most specimens collected in May are found to still have some traces of the winter plumage, below described.

Adult, during autumnal change. The first indication of the moult is seen in the wings and tail, and is to be observed in nearly all specimens taken after July. By the latter part of this month, after incubation and nursing are finished, the wing and tail feathers become much worn, and faded, turning to a light brownish gray towards their tips. The white mirror shows scattered traces of dull brown. The body colour loses its hue of green, and becomes more fuliginous brown. Isolated white feathers are scattered over the whole body; or the dark feathers acquire white tips. With the falling of the quill-feathers, which may take place very rapidly, and deny for a season all power of flight, the bird is in the following condition, which is the pure *moulting* state, exactly intermediate between the summer and winter plumages: No. 18254, Mus. Smiths., Labrador, Aug. 14, 1860. E. Coues. Wing-feathers renewed, pure black, but not fully grown;

* Although this author does not recognize the specific validity of *U. columba*, and would therefore range specimens of the latter under *grylle* in his catalogue, a specimen (No. 5) there enumerated appears to be this species, as is inferrible from the expression "Au miroir d'un blanc pur."

wing from the carpus only 4·50 long. Mirror of renewed feathers, almost or quite pure white, but small; under wing-coverts and axillars pure white. Head and neck all around, rump, and whole under parts marbled with black and white in equal quantity, the bird looking as if dusted over with flour. Back black, most of the feathers lightly bordered with white, the scapulars more largely white. A still further increase of white produces the following:—

Adult, winter plumage.—Wings and tail black, the mirror and under wing-coverts faultlessly white. Head and neck all around, rump and entire under parts pure white; the back (and frequently the crown and back of neck) black, more or less variegated with white. Audubon figures this condition very nearly.

The change in spring—mostly occurring during April and May—is the reverse of that already described as the autumnal moult.

Fledglings. — (Labrador, July, 1860, E. Cones, Mus. Smiths. Length about 6·00; bill ·50; tarsus ·60; middle toe and claw ·90, etc. Wholly covered with soft woolly puffy down, fuliginous brownish black; bill and feet brownish black.

Young, first plumage.—Traces of the down on various parts of the body; the bird probably just beginning to fly; length about 10·00, wing 11·50; bill 1·00, black; tarsus 1·25; reddish dusky, as also are the toes. Upper parts plumbeous or sooty black, scarcely varied with white. Mirror beginning to appear, as white spotting on a blackish ground. Entire under parts white, thickly marbled, rayed and undulated with light touches of dusky.

This state tends to pass directly into a condition exceedingly similar to, if not identical with, that of the adults in winter. But birds of the first winter may, at least early in the season, be distinguished from old ones by a certain “feel” of the plumage, and a shorter, weaker bill, less developed as to its ridges and angles.

Accidental variations.—The foregoing descriptions apply to the various stages of plumage, which are strictly normal in character, and which, though unending in precise degree, and varying with almost every individual, merge insensibly into each other. The species is, however, also very subject to accidental and entirely abnormal variations. Of these, albinism is the most common. (Spec. in Mus. Acad. Philad.). Entirely milk-white, without a trace of black; bill and feet light-coloured; eyes probably pink in life. The opposite condition of melanism is described by authors. This consists in the total absence of white on the wings; and is apparently of infrequent

occurrence. Both these conditions have been described and named as characterizing distinct species. In the latter, the bird must not be confounded with *Uria Carbo*, which is totally different.

Dimensions.—Adult: Length (average), 13·00; extent (average), 22·50; wing 5·50 to 6·25; tail 2·00, a little more or less; bill along culmen 1·30; along rictus 1·75; along gonys ·65; depth at base ·45, width ·35; tarsus 1·25; middle toe and claw 1·75, outer do. slightly less, inner do. 1·40.

It may be of advantage to look closely into the formation of the white area upon the wing of this species, to the end that its composition may be clearly understood, and recognized as different from that which obtains in the allied species, *U. Columba*. The mirror upon the upper coverts varies to a degree, and in a precisely similar way, in each species; but when perfect constantly presents a radical difference.

When *Uria grylle* is observed flying, as is its wont, low over the water with rapid beats of the wings, the eye receives the impression of a black bird, with a large white circular spot on the wing. This spot is constantly in view, and represents the retinal image resulting from the white spaces upon both the upper and under surface of the wings blended together by the rapid motion of the wings. Those who have observed *Uria grylle* in its native haunts will appreciate the pertinence of this remark. *Uria Columba* presents no such peculiarity of appearance, there being no white upon the under surface of the wings; and the eye readily follows the movement of the small white space upon the wings, as with the changing attitudes of the bird, it is now apparent, now lost to view.

In *Uria grylle* the row of great coverts upon the secondary quills are basally black, terminally white. The outermost are white for rather less than half their length, and the white occupies chiefly the exterior webs. Nearer the body they are white for more than half their length, and the white occupies both webs of the feathers. The next row of coverts are wholly white in their entire length, except perhaps for a very brief space just at their base; and they are throughout long enough to cover entirely the dark portion of the first row, reaching a little beyond and overlying the commencement of the white upon the latter; so that the white is continuous and unbroken. One or two more rows of coverts have precisely the same character and continue the white space uninterrupted. The shorter coverts, for about half an inch from the edge of the antibrachium are black; the

last of these, however, are broadly tipped with white, which white portion overlies the extreme bases of the next row, blending its colour with that of the latter; the anterior edge of the mirror being thus the line of union of the black and white portions of these coverts, taken collectively.

In *Uria Columba* the row of great coverts is externally wholly black, or at most the outermost feathers have only a very narrow white tip. The amount of white on the feathers increases rapidly from without inwards, until on the innermost there is nearly or quite as much white as in *U. grylle*. In consequence of the small amount of white on these coverts, the next row of coverts do not overlie, nor even reach it, there being left a broad space of dusky between the white tips of the second row of coverts and those of the first, which space rapidly diminishes from the edge of the wing towards the body, forming the curved crescent of dusky which is obvious upon the wing of this species.

The mirror of *Uria grylle* is subject to much variation, which, however, never obscures its distinctive characters in any decided degree. The greater coverts may be wholly dusky, then the mirror is the same as before, except in its smaller size; the next row may be tipped with dusky, so that no white comes forward to coalesce with that of the greater row, and an appearance like that of *U. Columba* is produced, which need not deceive, since the dusky results from the second row of coverts instead of the first: all the wing-coverts may be tipped with dusky, producing a variegated or spotted mirror: finally, the mirror may be only indicated by a few isolated white feathers, or may be altogether wanting. It is to be borne in mind that the difference in the mirror of *U. grylle* and *Columba* is only one of the most obvious distinctions, but not the most specific. In the very possibly occurring cases in which there is absolutely no difference between specimens in this respect, the absence of the white under the wing and the shape of the bill readily distinguish *U. Columba* from *grylle*.

Perhaps no bird has so many synonyms as *U. grylle*. Independently of its reference to divers genera, a large number of nominal species have been instituted upon its various stages of plumage, some of them requiring brief notice. A very common name for the species among pre-Linnean writers was "*Columba grœnlandica*"—obviously a mere rendering into Latin of a popular designation. The word "*grylle*" made an early entry into the records, designating the adult plumage. *Grylloides* of Brünnich represents a variegated condition, and *balthica* of the same author an immature or winter state. *Lacteolus* of the

older authors seems to have been based upon the albino condition, the bird being described as “*niveus, rostro pedibusque ex carneo fusciscentibus*”: it is possible that Pallas, who introduced the word, may have really based it upon a specimen of *Columba*, but this is a point of no special consequence. Bonnaterre has another name, “*nivea*,” for the same condition, quoting Pallas, *Sp. Z.*, v. p. 33. Brisson and Brehm both have a large number of nominal species, not necessary here to particularize. In 1817 Vieillot (l. *suprà cit.*) described an adult under the name of *Uria leucoptera*, erroneously assigning it dimensions nearly equal to those of *Lomvia troile*: at least the presumption is that this *leucoptera* is nothing but a large *U. grylle*, though he must have been perfectly familiar with the latter. Even so late as 1824 *grylle* is redescribed as *Uria scapularis*. The “*Uria Mandtii*” of Lichtenstein requires attention, having been extensively quoted as a synonym of, or employed to designate, *U. Columba*: it is not possible to determine, from the description, whether *Mandtii* is really based upon *Columba* or upon *grylle*; but Dr. Schlegel describes a specimen from Spitzbergen, in the *Mus. Pays-Bas.*, “*un des individus types de l’Uria Mandtii de Lichtenstein, obtenu du Musée de Berlin*,” as having the white feathers of the mirror tipped with clear brown, and the wing and the tail feathers faded grayish: this is a common condition of autumnal specimens of *grylle*, and the description does not point more particularly to *Columba* than to this species: upon the whole it may be best to regard *Mandtii*, *Licht.*, as a synonym of *grylle*, though the name as used by Brandt, Bonaparte and some others refers unmistakably to *Columba*. A certain *Uria unicolor* is described by Faber and Benecken, and admitted as distinct in the ‘*Comptes Rendus*’ by Bonaparte, who moreover places it in a different subgenus from *grylle*. Bonaparte does not use the term to designate *Carbo*, *Pall.*, which latter he gives as distinct. The name seems to have been based upon the melanotic state of plumage of *grylle*. Dr. Schlegel describes, in the ninth livraison of the *Mus. Pays-Bas Catalogues*, one of Faber’s type specimens from Greenland, as being “*Au plumage d’un noir enfumé absolument uniforme.*”

Uria Columba (Pallas), Cassin.—Habitat: Asiatic and American coasts of the North Pacific, Kamtschatka (*Mus. Acad. Philada.*), Russian America, Washington Territory, California (*Mus. Smiths. Inst.*). Breeds on the islands off the coast of California.

Bill stouter than that of *U. grylle*, more obtuse at the tip; upper mandible with the culmen straight, or even just appreciably convex,

suddenly deflected; rictus straight, ascending to near the tip; gonys and outline of inferior mandibular rami straight.

Adult.—Entirely fuliginous or plumbeous-black, with a shade of invisible green. White mirror on wing-coverts. Nearly divided in two by a broad rather curved oblique line of blackish. No white on under wing-coverts, these being grayish brown. Bill and claws black. Mouth and feet vermilion-red, tinged with carmine. "Iris white" (label). Length 13·00; extent 23·00; wing 7·00; tail 2·20; tarsus 1·25; middle and outer toe and claw 1·90; inner toe and claw 1·45; bill along culmen 1·20, along rictus 1·80, along gonys ·65; depth at base ·40; width ·30.

This species closely resembles *U. grylle*, but differs in being upon an average larger, the wing particularly longer; the bill stouter, straighter, more obtuse at the point; and the marking of the wings different, as above described. The changes of plumage and the individual variations, as exhibited in the large series of specimens examined, are entirely parallel with those of *Uria grylle*. It is worthy of note that this species occurs, in summer, upon the Pacific coast of America, much south of the corresponding latitudes on the Atlantic coasts frequented at this season by *U. grylle*.

One of the earliest indications, if not the first, of this species, may be recognized in the variety of the black guillemot from Kamtschatka, described by Pennant: this is said to have a white oblique line issuing from the white spot on the wing. The var. β of *U. grylle* of Latham and Donndorff is the same bird. Pallas appears to be the first to bestow a specific name. The question involved in the *Uria Mandtii* of Lichtenstein has already been considered in the preceding article.

Uria Carbo (Pallas), Brandt.—Habitat: "In oceano orientale circa insulas Aleuticas, præsertim Unalasccha" (Pallas), Kamtschatka (Mus. Acad. Philada.), Japan (Mus. Smiths. Inst.)

Larger than *U. grylle* and *U. Columba*; the bill especially larger, stouter and straighter. Feathers of nasal fossæ and those around base of lower mandible whitish. A conspicuous white area around eyes, and extending an inch or so behind them. No white on either surface of wings. Rest of plumage brownish black, becoming ashy black on the under parts; perhaps deep plumbeous-black, with a shade of greenish, in more mature specimens than those examined. Bill black. Legs and feet chrome-yellow, tinged with vermilion; webs coral-red in the dried state, probably vermilion or carmine-red in life. Length 14 to 15 inches; wing 7·75; tail 2·50; culmen 1·55; commissure 2·20;

from feathers on side of lower mandible to tip 1·50, tarsus 1·36; middle toe and claw 2·10, outer 2·00, inner 1·60. Another specimen:—culmen 1·70; commissure 2·10; feathers on side of lower mandible to its tip 1·55; depth of bill at base ·50; width at same point ·38.

An interesting species of *Uria*, easily recognized by its peculiar colours, which are different from those of either of the other two species here described. Although unmistakably characterized by Pallas in 1811, it seems to have been overlooked by many subsequent writers. It appears, however, in the monograph of Prof. Brandt, who was well acquainted with Pallas' labours and discoveries, and is on different occasions noticed by Mr. Cassin, who has given a figure of it in the Atlas accompanying Prof. Baird's 'Birds of North America.' There is a fine specimen in the Philadelphia Academy, from Kamtschatka, and a mutilated one in the Smithsonian Institution, from Japan. The latter is interesting on account of the new and unusual locality. The bird is chiefly an inhabitant of the higher latitudes on the coasts of the Pacific Ocean. It has not yet become a common bird in collections.

The species is somewhat larger than *U. grylle* or *U. Columba*, but chiefly noticeable, as far as form is concerned, by the greater stoutness and straightness of the bill, very observable upon direct comparison. The culmen and commissure are nearly straight almost to the very tip, where they are rather suddenly decurved. The gonys and mandibular rami are quite straight; the eminence at their symphysis is well marked. The nasal fossa is short, but wide and deep; the feathers reach to the nostrils, but do not cover them: these nasal feathers, as well as those around the base of the lower mandible, are dull white. The eyes are conspicuously encircled with white, which stretches behind them for about an inch, tapering to a fine point. There are no indications of white on the wings. With the exceptions just mentioned the whole plumage is sooty black, tinged with slaty above, with brownish below, and becoming light ashy on the under surfaces of the wings. The bill is black, as in the other species; the inside of the mouth probably carmine-red in life. The feet are light yellow in the dried specimens, doubtless vermilion or carmine-red in life. The webs are still tinged with this colour. The claws are black.

It is possible that the plumage just described is not that of the perfectly adult bird, in which, when fully mature, the white about the sides of the head and base of the bill may not be exactly as here described, and the body colours may be purer and more intense. Dr. Schlegel describes a specimen from the Kurile Islands as "d'un

noir enfumé uniforme;" and another, from Sachalin Island, as an "individu au plumage imparfait; d'un brun fuligineux, passant au blanchâtre sur la face et les côtés de la tête."

(To be continued.)

A List of the Hemiptera collected by J. K. Lord, Esq., in Egypt, along the African Shore of the Red Sea and in Arabia; with Descriptions of the Species new to Science. By F. WALKER, F.L.S.

(Continued from Zool. S. S. 2341).

Fam. RHOPALIDÆ.—Gen. RHOPALUS, *Schill.*

14. *Capitatus*. *Lygæus capitatus*, *Fabr. Ent. Syst.* iv. 169. Cairo. Inhabits Europe.

Fam. LYGÆIDÆ.—Gen. LYGÆUS, *Fabr.*

15. *Equestris*. *Cimex equestris*, *Linn. Syst. Nat.* i. 726. Mount Sinai. Wâdy Gennèh. Harkeko. Tajura. Massowah. Inhabits Europe and W. Asia.

16. *Militaris*, *Fabr. Ent. Syst.* iv. 147. Mount Sinai. Wâdy Ferran. Tôr. Wells of Moses. Inhabits Europe, Madeira, Teneriffe and Hindostan.

17. *Leucospilus*. Deep black. Head beneath, pectus and abdomen luteous or red. First joint of the antennæ short; second much longer than the third; fourth a little longer and thicker than the third. Prothorax setose, with a broad red band occupying the fore part and emitting three streaks into the hind part. Fore wings luteous, with an irregular black band which does not join the outer border; membrane deep black, with a snow-white spot on the inner angle, and a larger elliptical transverse snow-white spot in the disk. Hind wings blackish cinereous. *Var. β.*—Fore wings without a band. Length of the body $3\frac{1}{2}$ — $4\frac{1}{2}$ lines. Tajura.

Gen. NYSIUS, *Dallas.*

18. *Senecionis*. *Heterogaster Senecionis*, *Schill. Beitr.* i. 87, pl. 8, f. 1. Tajura. Inhabits Europe.

Gen. RHYPAROCHROMUS, *Curtis.*

19. *Semidolens*. Black, elongate-subfusiform. Head reddish, with a short stout spine by the insertion of each antenna, and with two

furrows in front, where it is elongated. Proboscis, antennæ and legs pale testaceous. Third joint of the antennæ blackish towards the tip; fourth blackish, whitish towards the base. Prothorax extremely minutely punctured, with a transverse furrow; each side with a slender whitish stripe, which proceeds from the fore border and does not extend to the hind border. Abdomen beneath with an abbreviated whitish stripe along each side. Corium of the fore wings whitish on half the basal surface and with a large whitish spot near each tip; membrane blackish, with a whitish spot on the base of the fore border. Length of the body 5 lines. Hor Tamanib. Harkeko.

Gen. MICROPUS, *Spinola*.

20. *Discolor*. Blackish, narrow, smooth, depressed, nearly linear. Head nearly triangular, acute in front. Antennæ testaceous; second joint longer than the third; fourth blackish, nearly as long as the third. Prothorax quadrate, a little narrower in front, with a testaceous rim. Abdomen testaceous, blackish towards the tip. Legs testaceous; tarsi blackish. Fore wings testaceous, less than half the length of the abdomen, blackish towards the base. Length of the body 2 lines. Harkeko.

Gen. CYMUS, *Hahn*.

21. *Cincticornis*. Black. Head and prothorax slightly setose, thickly punctured. Head elongate-triangular. Proboscis and second joint of antennæ testaceous. Scutellum testaceous, with a black basal triangular spot. Tibiæ testaceous; tips black. Corium of the fore wings testaceous, with a blackish point at the tip; membrane whitish, pellucid. Length of the body $1\frac{1}{2}$ — $1\frac{3}{4}$ line. Harkeko.

Fam. PYRRHOCORIDÆ.—Gen. PYRRHOCORIS, *Fallen*.

22. *Ægyptius*. Cimex *Ægyptius*, *Linn. Syst. Nat.* ii. 727. Perhaps a variety of *P. apterus*. Souakin.

Fam. HARPACTORIDÆ.—Gen. HARPACTOR, *Delaporte*.

23. *Signiceps*. Black, pilose, red beneath. Head with two red streaks in front of the antennæ, with two converging red streaks behind the antennæ, and with a lanceolate red streak on the hind part; under side with a black lanceolate streak proceeding from each eye. Rostrum red towards the base. Fore division of the prothorax tuberculate, with two larger tubercles on the hind border and with a red spine on each side in front; hind part roughly punctured, bordered with red except

in front, and having a slight impressed longitudinal line. Scutellum with a red tip. Abdomen with black transverse streaks on each side beneath. Legs black; femora beneath and coxæ red. Fore border of the fore wings red at the base. Length of the body 6 lines. Mount Sinai.

Gen. CORANUS, *Curtis*.

24. *Arenaceus*. Testaceous-cinereous, or sand-colour, minutely punctured, with short bristles. Ocelli behind the eyes seated on tubercles. Eyes black, shining, prominent. Antennæ testaceous, darker towards the tips. Prothorax somewhat gibbous in front of the transverse furrow; sides prominent, much rounded; hind border slightly excavated in the middle. Abdomen reddish above, with black dots along each side. Legs short; femora and tibiæ with irregular blackish bands; fore femora mostly black. Fore wings with two reddish streaks in the corium; membrane æneous, pellucid towards the tip. Length of the body $4\frac{1}{2}$ lines. Harkeko. Tajura.

Fam. ———.—Gen. ACANTHIA, *Fabr.*

25. *Lectularia*. The bed bug. *Cimex lectularius*, *Linn. Syst. Nat.* ii. 715. Wâdy Gennèh.

Fam. NABIDÆ.—Gen. NABIS, *Latr.*

26. *Siticus*. Pale testaceous, slender. Antennæ very slender. Prothorax with three brownish stripes, which extend to the scutellum. Legs long, slender; fore femora slightly incrassated, a little longer than the middle femora, much shorter than the hind femora. Wings extending to the tip of the abdomen; hind wings pellucid. Length of the body 4 lines. Wâdy Ferran.

27. *Nabis? discifer*. Pale testaceous, long, very slender, nearly linear. Head and prothorax very minutely punctured. Head elongate-triangular, testaceous at the tip. Prothorax black, with a transverse furrow; hind part testaceous. Pectus black. Fore femora serrated beneath. Wings pellucid. Fore wings pale testaceous towards the base. Length of the body 3 lines. The specimen described is much injured. Dahleck Island.

Fam. NAUCORIDÆ.—Gen. NAUCORIS, *Geoffr.*

28. *Minusculus*. Testaceous. Head above with a lanceolate brown streak, which includes a pale spot. Prothorax with a brownish disk, which includes a pale curved streak on each side and an intermediate

pale spot. Scutellum brownish, with three pale spots. Abdomen above with black spots along each side. Fore wings brownish, with a pale streak along the base of the fore border. Length of the body 4 lines. Wâdy Ferran. Tôr.

Fam. NEPIDÆ.—Gen. NEPA, *Linn.*

29. *Grossa*, Fabr. Ent. Syst. iv. 62. Wâdy Feran. Sidri. Hôr Tamanib. Inhabits W. Africa.

Gen. NOTONECTA, *Linn.*

30. *Nanula*. Pale testaceous. Eyes brown. Femora and tibiæ striped with black. Wings pellucid. Length of the body 4 lines. Shoobra.

F. WALKER.

(To be continued.)

Loss of Cows from eating Acorns.—A farmer at Blakeney, Gloucestershire, has lost two valuable cows from eating acorns in a field where they were turned to pasture. On Saturday evening a third was despaired of, under the same circumstances. During the late hurricane large quantities fell, of which the cattle partook too freely; in fact, on examining the stomach of one of them two bushels of undigested acorns were found.—*Morning Post.*

Plague of Rabbits in Australia.—Warnambool, June 17, 1870. About three years ago a Mr. Robinson turned out thirteen wild rabbits on his run, and now more than £7000 have been spent in trying to get rid of them. There are said to be over 50,000 of them in the district, and they are spreading all over the country. We are now about forming a company to kill and preserve them for exportation. Two thousand four hundred rabbits were killed in one day by a party of gentlemen with guns about three weeks since, and they were all destroyed, not one of them used, to compel the dealers to kill for themselves, and so help to destroy them. It is said that over 100,000 have been killed, and still they appear as numerous as ever; and all these from thirteen rabbits in a little over three years!—*From the 'Field.'*

Eagles in North Wales.—While ascending Snowdon with a friend, on the 30th of September last, when near the summit we left the regular track in order to obtain a good view of the great precipice which looks north towards the pass of Llanberis, and is called, I believe, in Welch, "Crib Goch." Just as we reached the edge an eagle rose slowly from beneath our feet, and as we watched it continued for more than an hour circling and soaring round the precipitous sides of Glyder Vawr, until it was joined by its mate, and both birds were lost among the distant hills. I may add that two years ago I became acquainted with the eagle in its native haunts in Aberdeenshire, so that I had no doubt as to what the birds were. I presume these two eagles were simply passing visitors from a more northerly breeding place, and I should be curious to

know whether they have been noticed by other persons or elsewhere on their migration further south. In former times the golden and sea eagle were probably not very scarce in the mountainous districts of Wales, but I believe they are very rarely seen there at the present day. Willughby tells us that the golden eagle was supposed to breed about Snowdon in 1678, but I have not succeeded in finding any other direct record of an eyrie in North Wales, and I should feel much interested to hear whether any such record exists in the old topographical works or county histories of Wales.—*A. G. More; Glasnevin, October 12, 1870.*

Osprey at Poole.—We have just received a fine specimen of the osprey (*Falco haliaetus*), shot on the 27th of September at Poole, and it is being preserved by us.—*W. Hart & Son; West End, Christchurch, Hants.*

Harriers in Norfolk.—On the 23rd of July I had brought me a nest of young, in the down, of the hen harrier: they were four in number, and as they were strong healthy birds I succeeded in rearing them very easily. On the 3rd of August three young birds of the asbcoloured harrier, just killed, were brought me, and on the 6th another, making four—all no doubt from one nest. These two nests of harriers were taken in the neighbourhood of one of our broads. On the 30th of August a female marsh harrier was shot at Hickling: an examination of the stomach proved it had been feeding on a coot.—*T. E. Gunn; 5, Upper St. Giles, Norwich.*

Supposed Occurrence of Strix asio in Kent.—Lord Clifton, “undeterred by adverse opinion” (Zool. S. S. 2343), returns to the charge, though admitting having been mistaken in the size of the nondescript owl, which he is now convinced was eight, not eleven, inches long,—i. e. nearly a third less in size (a wide difference),—whereas, in the original note (S. S. 2138) he says, to prove the size of his owl, that “it seemed a little larger than a partridge,” that is, upwards of twelve inches and a half long—fully a third bigger than the *Strix asio*. As like in size as a giant of seven feet one inch and a half would be to a dwarf of four feet nine inches. Lord Clifton says, “By careful examination of birds of known length, I conclude that its length was about eleven inches;” and this, too, after telling us that it was larger than a partridge. May he not also, in the excitement of the moment, have been mistaken with regard to colour and other points? He remarks, “I know an eared from an earless owl,” but in the previous note he says, “I can hardly call them ears.” Though it may have been *Strix asio* observed at Cobham, I cannot but think that Lord Clifton has failed to prove it.—*Henry Hadfield; High Cliff, Ventnor, Isle of Wight, October 11, 1870.*

[I think it will be better that this discussion should end here: it is now impossible to obtain any precise information either from the memory of Lord Clifton or the surmises of his critics: we must wait for a second advent of the owl, and then we shall all be ready to welcome the little stranger.—*E. Newman.*]

Pied Flycatcher at Scilly.—This small bird, so little known in Great Britain, except in a few counties, and which never appears in the western counties as a summer visitor, makes the Scilly Isles its residence for some days in its southern retreat in the autumn: such is the case at present, a pair having occupied the Abbey Gardens up to the present time.—*Edward Hearle Rodd; Penzance, October 13, 1870.*

Grayheaded Wagtail at Gateshead.—Assuming that the wagtail shot by Mr. Watson (Zool. S. S. 2343) is the true grayheaded, it is difficult to understand that this bird should have bred three times at Gateshead, and I shall be much obliged if he will further investigate the matter, as I cannot help thinking that he has confounded the

gray wagtail (*Motacilla boarula*, Lath.) with the grayheaded (*M. flava*, L.)—*J. H. Gurney, jun.*; 2, Beta Place, Alpha Road, N.W., October 17, 1870.

Tawny Pipit, Ortolan Bunting and Lapland Bunting near Brighton.—I saw the following birds at Mr. Swaysland's very shortly after they were taken:—

Tawny Pipit (Anthus campestris). A very interesting specimen of this bird was taken near Brighton by a bird-catcher. It is a young bird of the year, and in plumage similar to the young of the sky lark in its first dress, having all the back, the scapulars and the two middle feathers of the tail edged with cream-colour. Can this bird have been bred in this country? for, though full grown, it seems almost too young to have travelled far. It will go into Mr. Monk's beautiful collection at Lewes.

Ortolan Bunting (Emberiza hortulana). A fine male was captured, by the aid of bird-lime, by a young gentleman in the Dyke Road, near Brighton, on the 30th of September: it was excessively fat when skinned.

Lapland Bunting (Emberiza lapponica). A fine young male was captured at Brighton on the 6th of October.—*Frederick Bond.*

Second Occurrence of the Scarlet Bullfinch, near London.—On Monday last I saw a fine young female of the scarlet bullfinch that was taken near Caen Wood, Hampstead, by a bird-catcher, on the 5th of October, 1870. I purchased the specimen, and it will go into my collection. It will be recollected that I recorded the first occurrence of this species (near Brighton in September, 1869), in the January number of the 'Zoologist' (S. S. 1984).—*Id.*; October 12, 1870.

Be-mired Crossbills.—On Thursday, the 6th instant, as two labourers were returning home from work, in passing through Captain's Close they observed a bird sitting upon the sluice-plank, situate at the lower end of the drain which runs through the field. One of the men, named Coggles, went to the spot, and putting his hat carefully down secured the bird, while at the same time another of a similar kind fluttered in some nettles between his knees: this was also captured. Later in the afternoon another was taken, on the same plank, by a labourer named Clark, and on the following morning one was caught by a boy on the bank, a few yards from the sluice. The birds, which proved to be crossbills (*Loxia curvirostra*), had all been in the soft mud of the drain, and were consequently unable to fly. Three of them are in the possession of Mr. Thomas Ellis, the well-known animal and bird preserver of this town, and are alive and doing well.—'Lynn Advertiser' of October 15, 1870. [Communicated by Mr. Gurney.]

Nightjar near London.—On the evening of the 1st of September a fine specimen of the nightjar (*Caprimulgus europæus*) was shot while hawking for moths on the skirts of a little copse within two hundred yards of this house, which is situated between Brandesbury Park and the North London Railway, and which is only about three miles from the Marble Arch. The occurrence of this heath-loving bird within such a very short distance of the great metropolis strikes me as being worthy of notice.—*C. Bygrave Wharton; Home Lodge, Willesden Lane, Middlesex.*

[The nightjar has often been seen on Hampstead Heath, and a reliable ornithologist tells me it has once bred there.—*E. Newman.*]

Californian Quail in Sussex.—Having read in your paper of one of these young birds being shot near here, I would beg to say that I have taken great trouble, at considerable expense, to rear about sixty of them. They stray away a good deal, but return two or three times a week, and feed in front of the keepers' cottages, fearless of

harm from any one, and more tame than pheasants. I would beg any one to spare them through this their first season, and would be happy to show an aviary of them to any one interested in them.—*S. M. Wilson; Searles, near Uckfield, October 11, 1870.*

[I have several communications on the occurrence of this quail in Sussex: they are without doubt some of Mr. Wilson's birds.—*E. Newman.*]

Quails in the East of Scotland.—Small numbers of these birds have made their appearance this year in many parts of Scotland. On September 2nd one specimen was shot by Mr. Annandale, at Lasswade, near Edinburgh; and on the 16th of the same month another specimen was obtained at Lasswade. A third was obtained at Galashiels in the beginning of October. I was informed yesterday by Mr. Small, of Edinburgh, at whose shop I have seen all these birds, that a nest containing fourteen eggs was taken last summer at Craiglockart Wood, near Edinburgh, but I am unable to discover what has become of the eggs. I may also mention that two quails were shot at Yester, in East Lothian, at the end of September last.—*R. G. Wardlaw-Ramsay; Whitehill, Lasswade, N. B., October 20, 1870.*

Quails at Wilden, Beds.—In the early part of this month we met with some quails while out partridge-shooting. The male bird was first killed: an hour or two later, when passing through the same field, we killed the female: a few minutes afterwards we suddenly walked into the midst of a bevy of young ones running in the stubble, when they rose; one was killed and the rest dispersed, and in the next field we came on one crouching in a hollow in the ground, which rose upon being touched with the foot, and was added to the bag.—*W. J. Chalk; Wilden Rectory, September 26, 1870.*

Quails in Norfolk.—Quails have been plentiful in Norfolk this autumn. I have seen two shot, and heard of several others.—*J. H. Gurney, jun.*

Gray Plover at Blakeney.—On the 8th of October I observed several gray plovers at Blakeney, near Cromer. Two were shot, an adult in winter plumage, and a young bird retaining some of the yellow spots which mark the first plumage.—*Id.*

Wood Sandpipers and Greenshanks in Norfolk.—I had all the following birds sent me in the flesh:—July 18. A pair of wood sandpipers from Yarmouth. July 30. A male wood sandpiper from Caston, near Watton. August 11. A female greenshank from Hingham. August 16. Two greenshanks seen; one, a male, shot at Hickling.—*T. E. Gunn.*

Woodcock in August.—A friend of mine flushed a woodcock, at Carshalton, on the 20th of August: he also shot on the same day three snipe and a common quail.—*A. H. Smee.*

Solitary Snipe in Norfolk.—On the 31st of August a female was shot at East Ruston, and a second was also killed a few days after by the same gunner in the same locality: he also saw another with the last mentioned, which, however, escaped.—*T. E. Gunn.*

Schinz's Stint at Scilly.—I have received by the packet to-day from my nephew, who is staying at the Abbey, an interesting specimen of this *Tringa*, apparently in change from summer to winter plumage. In examining it in the flesh with the dunlin in a similar state of plumage, I am more and more convinced of its specific value as distinct from *T. variabilis*. The shape, character and shortness of the bill is one; it is very much shorter,—in fact, as short as the buffbreasted sandpiper's bill,—and it fines off towards the end suddenly, and the tip is sharp and pointed. The legs are black, whereas in the dunlin the legs are a little inclined to a paler tone: there is still

a more interesting distinctive character in its plumage in this seasonal state of change. In Schinz's *Tringa* the under parts are of an unsullied white, that being the colour observable at both seasons. In the dunlin, in the partially assumed change plumage from summer to winter, the under parts are *mottled* more or less, showing the change from the dark ventral band to the pure white in its winter plumage as the *purre*. I need not say that the great character of the *white upper tail-coverts* in the present specimen is similar to those I obtained before from the Hayle Estuary.—*Edward Hearle Rodd; Penzance, October 10, 1870.*

P.S.—I forgot to mention in my communication yesterday that the spotted crake (for the first time), redbacked shrike, redshanks and ring ouzels were all at Scilly last week.—*E. H. R.; Oct. 11th.*

American Stint.—Referring to your inquiry as to the species to which the American stint shot by me at Northam Burrows belongs, Mr. Gould, to whom I showed the bird, considers it to be a specimen of *Tringa Wilsonii*.—*Marcus S. C. Richards; Clifton, September 24, 1870.*

Little Stint, &c., near Leigh.—On the 17th of September I shot a little stint, which was flying in company with another. I also obtained two knots (local name "male") and a brace of wigeon. I saw large flocks of gulls and two or three good broods of teal and wigeon, also two greenshanks, but was unable to get near them. Wigeons were seen on the 16th for the first time this season. Wild-fowl have decidedly increased this year, and are more easily approached: this increase is no doubt due to the protection afforded to the birds during the breeding season by the Sea Birds' Preservation Act. The ten shilling tax on guns has likewise prevented a lot of boys popping away at the birds, to the great satisfaction of the regular gunners.—*A. H. Smee.*

Gray Phalarope near Southampton.—A gray phalarope was shot near Southampton on the 20th instant: it is the only specimen I have met with since the autumn of 1866, when they occurred in such numbers in different parts of the country, as recorded in a pamphlet by Mr. Gurney, a copy of which that gentleman kindly presented to me. The summer plumage of this specimen still predominates, the gray winter dress appearing as yet only on the scapular feathers, while in those of the 17th and 24th of September, 1866, the gray colour was much more advanced. I conclude the present specimen must be a young bird of the year.—*T. H. Goatley; 4, Strand, Southampton, October 22, 1870.*

Gray Phalarope at Bishops Lydeard.—I have just had a gray phalarope brought in killed close by the railway station here at Bishops Lydeard.—*Cecil Smith; Lydeard House, October 23, 1870.*

Gray Phalaropes in North Devon: Moulting of Birds.—It would seem that the heavy gale of last week intercepted a number of gray phalaropes on their migration, and caused them to put in for shelter on our western coasts. I have heard of sixteen having been shot in one day at Instow, in North Devon. Five of these I have examined, and am surprised to find that they are but slightly advanced in their change towards their winter dress. One would have thought that by the middle of October the gray plumage of winter would have been completely assumed; but a bird I have which was shot, some years since, in the first week of September, shows fewer of the yellow-edged feathers, and is grayer than any of the birds I have seen from Instow, obtained six weeks later in the season. In these last the throats are still

delicately tinged with buff, and the backs and shoulders exhibit a pretty mixture of gray and yellow-edged feathers. In one bird there is more of the summer rufous tint than in the rest, the upper tail-coverts being still distinctly coloured as they are in summer. Not long since I had occasion to notice how capricious moulting is with birds: some individuals are well advanced, while others have scarcely commenced their seasonal change. Out of the same flock, a short time since, I killed sanderlings in complete winter dress and others in an intermediate autumn stage of plumage. A great deal no doubt depends upon the constitution of individuals. It is with birds as with other creatures. Just as we find some children more forward with their teething than others, the most forward possessing more physical vigour and consequent powers of development; so among birds those which most rapidly pass through their moults may be regarded as exhibiting thereby a superior *physique* to those that are slower in their transition from one state of plumage to another.—*Murray A. Mathew; Bishops Lydeard, October 22, 1870.*

Little Crake in Somersetshire.—One of these birds was shot last week on the river near Taunton, by the son of one of the hotel-keepers of that town, who was out about the river shooting moorhens, and amongst other things brought home a specimen of the little crake, which, on account of its small size, he despised and threw away for the cat; but the father luckily saw it, and thinking it was a bird I might like, rescued it for me. The bird thus rescued is now in my collection, and a very fair specimen it makes. As Yarrell does not mention the measurements of the legs and toes, perhaps it may be worth while to add some of the measurements of those parts: the tarsus is one inch two lines; the middle toe, including the claw, 1 inch six lines; the hind toe nearly seven lines.—*Cecil Smith; October 13, 1870.*

Great Crested Grebe feeding its Adult Young.—A few days ago I was sitting on the bank of a large piece of water where these birds breed freely and are not uncommon, when my attention was specially attracted to an old bird which was feeding, at some distance from the rest, in company with a young and perfectly full-fledged bird of the year: it suddenly uttered for several seconds a peculiar whistling sound, and upon looking more closely at it I observed that it had caught a large fish and was holding it in its bill. The young bird, as soon as it heard the whistling, swam hastily up to its parent, who put the fish into its opened bill, from whence it was very speedily conveyed into the crop.—*H. Harpur Crewe; The Rectory, Drayton-Beauchamp, Tring, September 26, 1870.*

Cormorant inland.—In the 'Zoologist' for 1869 (S. S. 1921) I recorded the occurrence of a cormorant at Kimberley. I have now to mention that a specimen, an immature male, has also been captured this season, on the lake in the same locality, on the 9th of September. It would have been allowed to remain unmolested but that it cleared the fish out of the lake so rapidly.—*T. E. Gunn.*

Pied Head in the Common Skua.—In the 'Zoologist' (S. S. 992) there is a note on the common skua (*Lestrnis catarractes*), the head of which was "mottled with small patches of white feathers." I find that to have some trace of this pied appearance is the rule rather than the exception. I have noticed it in the living examples in the Zoological Gardens, which were sent from the Cape by Mr. Layard (and which are now regarded as identical with the British species); but I never saw it more strongly marked than in a specimen which I selected this morning, in Leadenhall Market, from among some pomarine skuas.—*J. H. Gurney, jun.; October 19, 1870.*

Notes from Northam Burrows.—During a recent visit to Northam Burrows I obtained, on the dates stated, the following birds:—

Curlew Sandpiper, on the 8th of September. A large flock of this species has been frequenting the mud-flats between Northam Burrows and Appledore for some time.

Gray Phalarope, female, on the 10th of September, and another specimen, a male bird in very fine plumage, on the 15th.

Lesser Tern. On the 13th of September two specimens, both females, in immature plumage.

Little Stint. A pair on the 14th of September.

Reeve. A specimen on the 15th of September. This bird, together with a ruff, I had observed for some time previously in company with a flock of bartailed godwits.

Knot. A flock of knots frequented the mud-flats for many days, in association with ringed plovers and dunlins, and from which I obtained a specimen in nearly full summer plumage, on the 6th of September.

I observed a pair of greenshanks on the River Taw, near Barnstaple, on the 5th of September, but, owing to their extreme wildness, was unable to obtain a specimen.—*Marcus S. C. Richards.*

Preservation of Sea-fowl.—More than twenty years ago the late Archdeacon Thorp, of Durham, took a lease of the Farne and Staples Islands,—I believe with no other object than the preservation of the birds. His son, the Rev. Charles Thorp, has them now, and carries out his father's plan: he has two keepers on the island from May to the end of September; they prevent people taking the eggs or going on the islands to shoot the birds. From the opening of the season to the 14th of June they take the eggs of the gulls, eider ducks, guillemots and cormorants, and sell them in the surrounding district to be eaten: they are quite appreciated. After that time they are not disturbed. Collections are also made, to a limited extent, of all the other and rarer birds, and sold as specimens. There is no doubt the birds have largely increased in number for some years, especially the cormorants and terns. The first year my son and I visited one of the islands (soon after the Archdeacon took them) there were three broods of cormorants; this year there were upwards of one hundred. What is now wanted is to extend the "close time" for shooting from the 1st of August to the 1st of September. I can give my word that the number of young birds on the 1st of August not strong on the wing was very large. After the 1st of September they disperse all along the coast, and cannot be shot in great numbers. I believe that in future the Rev. C. Thorp will not have the eggs taken after the 1st of June. There is no doubt if the eggs were not taken at all the young would be able to take care of themselves earlier; but this mode of taking the eggs, to some extent, reimburses the rent and the wages of the men to watch. The herring gulls and the jackdaws devour the eggs of the birds to a large extent. The shooting has been carried on this year to a very small extent, in consequence of the prevalence of east winds and rough sea. The first week in August a steamboat from Shields came down with a party to shoot, and they swept some basaltic columns, where the guillemots and razorbills mainly lay, with a cannon loaded with small shot, and I hear destroyed a great number, and probably did not take up any of the dead. Urge the extension of the "close time" till the 1st of September by all means.—*George Mennell; Bamborough, near Belford, Northumberland, September 8, 1870.*

Large Roach in the Avon.—The roach in the Avon at Salisbury are large and numerous. I have during the last three weeks caught many, one of which weighed two pounds and a half, and is preserved by a local bird-stuffer, and is now in my possession. I only caught two under one pound and a half.—*From the 'Field.'*

[I much regret the practice of newspaper correspondents in declining to furnish their name and address as a voucher for the *bonâ fide* character of their communications. A roach of two pounds and a half weight is very unusual.—*E. Newman*]

Strange Discovery in Wales.—In the vale of Clwyd, at a distance of two miles from the cathedral city of St. Asaph, are situated the Cefu Caves, which prove of much interest to the summer visitors to Rhyl and its neighbourhood. The caves are two in number, a higher and a lower. The entrance to the former and more extensive is about midway up the cliff, which is there almost perpendicular; the entrance to the latter is on a level with the bank of the river Elwy, which skirts the cliff, and during floods the waters rise high over its mouth. It was in this cave that the discovery was made last Monday. It had been rumoured of late that parties visiting this place had on several occasions seen some strange animal creeping in its dark recesses, and on Saturday visitors reported having had a good view of him, and stated it was a huge beast of the lizard tribe. On the Monday following Thomas Hughes, from Rhyl, went to try to capture him. Armed with a stout stick, he approached its reported lair, but not seeing it he decided to remain in ambush at the mouth of the cave, sheltered by a projecting ledge. After having thus waited an hour his patience was rewarded with success. He could hear in the far end a hum as of a hive of bees. The sound growing louder, and now apparently quite close, Hughes peeped round the ledge and saw the monster within three yards of him. He (Hughes) sprang towards him, and dexterously wielding his stick he dealt him a well-aimed blow upon the neck just behind the head, which caused him to stagger and reel. One more blow in the abdomen finished him. Hughes carried him home in triumph, and is now making a profit out of the affair by exhibiting him at Rhyl. The monster is of the lizard tribe, as mentioned above. Only that our country was destitute of those creatures, we should have said it was a young crocodile. It measures from the nose to the end of its tail exactly four feet seven inches, the tail being rather more than half that length. Its limbs measure twelve inches; the fore ones have five toes, and the hind ones four; it is webfooted. Above it is black, and white beneath. Its coat is mailed, quite hard, and protruding in sharp corners and angles, like the crocodile's. The head is low and flat, the mouth large and round at the end, measuring seven inches by three inches; the teeth are numerous, but small, and bear great resemblance to those of a cod-fish. There is ample scope here for naturalists to investigate the how and wherefore this strange amphibian came to be discovered in the present epoch among the hills of North Wales.—*'Times,' of October 20.*

[The fact that the *'Times'* has inserted this not only without giving its authority, but also without any expression of doubt, leads one to suppose that the Editor at least did not regard it as a hoax. The *'Echo,'* however, states editorially that the crocodile died in a travelling menagerie, and was purchased for exhibition by the valiant Thomas Hughes.—*E. Newman.*]

Ornithological Notes from North Lincolnshire.

By JOHN CORDEAUX, Esq.

(Continued from S. S. 2338).

SEPTEMBER AND OCTOBER, 1870.

Swift.—September 14. Last appearance; two seen.

Quail.—September 15. Have been quite common, both in the marshes and on the wolds, and several have been shot; in one case three couple falling, in one day, to a single gun. These little birds are most difficult to flush, especially after the first rise. One this morning bothered both myself and dog for some time by most persistently dodging round the turnip-bulbs: as it rose it uttered a pleasant cheerful sort of "chirrup"; anxious for a specimen I fired too quickly, and so smashed the little fellow as to render it useless as a skin: it was excessively fat.

Reeve.—September 15. Two, apparently birds of the year, brought to-day for identification, were shot from a small flock on the "fitties" by one of our wild-fowl shooters.

Sanderling.—September 17. Three shot this morning at Spurn are in transition; all differ in plumage. At this stage they are, I always think, the most delicate and chastely coloured of the *Tringæ*, reminding one, in their quiet shadings of black, brown and gray, of the same seasonal change in the ptarmigan.

Hooded Crow.—September 26. First appearance, one seen; not general before the 10th of October. Sunday, the 9th, was wild and stormy, a gale from N.N.E. to N.E., with torrents of rain; by daylight on Monday there were scores scattered over the stubble-fields and along the shore.

Starling.—September 26. Immense flights noticed this morning near the coast.

Wheatear.—September 27. Last seen.

Stonechat.—September 27. Many (females or young birds) observed about the embankment and marsh; are unusually plentiful.

Curlew.—A flock of about two hundred passes each morning at daybreak over this parish, bound for the wold hills, where I have seen them, in company with rooks and sea-gulls, feeding in the large sheep walks. They return each evening about five o'clock, but broken up into smaller flocks, to the coast.

Bartailed Godwit.—Extremely numerous, and owing to their tameness much persecuted; now, however, they are becoming more difficult to get near, yet it has been only by constantly repeated firing at that they have become aware of the range of a gun. The usual practice of our gunners is, at low water, to dig a hole on the flats and sit there for the chance of a shot at the passing flocks of waders; and I never recollect such slaughter, and such heavy bags made, as has been the case this autumn.

Blacktailed Godwit.—By much the rarer of the two species, yet not uncommon this season, frequenting the coast in small numbers. They are always much wilder than their congeners, and consequently have not suffered to the same extent. Three were killed at a shot by one of the flat shooters: known as the “larger black and white tailed curlew whelp.”

Gray Plover.—Next to the knot and “bartails,” the commonest species on the fore-shore. Singularly tame and trustful as these birds are on their first arrival, they soon learn prudence, and become the very wildest of the wild. They have this autumn departed from their usual practice of keeping always to the flats, and now resort daily in flocks of fifty and sixty to the nearest grass and fallow lands; I suspect the reason is that they find they are not disturbed in these places. These flocks have all the manners and customs of golden plovers, but are readily distinguishable from the latter, particularly on ploughed land, by their much lighter appearance, and from the occasional glimpses they give us of the black axillars, as some member of the flock raises his wing.

Golden Plover.—A few seen, both on the fore-shore and marshes, during the last fortnight in the month.

Greenshank.—September 29. One shot on the flats: I got this bird. Several have been seen lately on the coast between Grimsby and Tetney Haven.

Redshank.—Not common: very few have been shot.

Dusky Redshank (?).—September 30. I was not in time (it had been sent to market) to secure a probable specimen of this rather rare species, shot this morning from a hole on the flats. The shooter (a Norfolk punt man, well up in all our shore birds) described it to me as a “sort of godwit,” plumage dark all over and speckled with white, legs long and yellowish, bill not as long as the godwits. When shot it was feeding in company with some knots.

Common Wren.—Can the little favourite of our gardens, like the goldcrest, be a migrant? Certainly it is partially so, for in no other way can I account for the number invariably seen, each year, about the first fortnight in October, in these bleak marshes. For a few days about this time we find them, often plentifully, near the coast on the Humber and sea embankments, the sand-dunes near the Humber mouth, and at Spurn, far removed from any hedgerow, tree or bush, and where their cheerful “chit, chit” as they flit from stem to stem of the wiry sea grass is lost amidst the thunder of the surf; they also haunt the drains in the marshes, threading their way along the reed-beds, and I have even found them in turnip-fields.

Woodcock.—Monday, October 10. Shot the first woodcock. Judging from the number exposed for sale in the game-shops on the following morning, there must have been a rather large first flight: the N.E. gale on Sunday was certain to bring them on the coast. In the January number of the ‘Zoologist’ (S. S. 1977), writing on the immigration of this species, I remark “that the winds which drive the woodcock to our coast are those blowing from N.W. to E, that the stronger the gale from between these points the more likely we are to have good sport,” and that “they never come with the wind in the S. or W.” This is undoubtedly the case, as scores of our sportsmen can testify; yet I think it does not therefore follow that these winds should be those most favourable for the crossing of the cocks. May not the fact of their being always found at the period of migration on this coast with the wind from these northerly quarters,—and the stronger the gale the greater the number,—rather prove that the opposite is the case, and that, exhausted by their flight, they drop directly they make the land, instead of proceeding, as they probably would have done under more favourable circumstances, with the wind *against* them, forward to their winter haunts; and that the reason we do not meet with any, with the wind blowing from the opposite half of the compass, is that they then do not alight, but pass on in the night, and first alight in the West of England or in Ireland. Woodcocks must come over some time or other in October, and it is rarely at this season we have the wind anywhere except from S. to W. If it does blow from the opposite quarters it is pretty certain to be a gale, and in that case look out for the cocks,—they are certain to drop along the coast. Our sportsmen will all say it is the N. or N.E. winds that bring them over, and this is undoubtedly true on this side the country, but is it not rather that these winds are those which soonest exhaust their powers

of flight, causing them to alight on the first shore they approach? Those who have seen the weary, heavy and short flights of the poor birds the morning after their arrival will understand the extreme exhaustion caused by a rough and adverse passage. If not disturbed they lie all day like stones, just where they happen to have dropped, but on the next night resume that flight, which except for the circumstance of their difficult and exhausting passage would never have been broken. The suspected arrival of the cocks at this season causes quite an excitement to the dwellers on the Lincolnshire and Yorkshire coasts, and every change in the wind is eagerly watched and commented upon. The first likely morning sees scores of shooters, both of high and low degree, out on the sea-shore and sand-hills; every nook and corner is carefully searched, and often heavy bags made. In former times, when these birds were much more plentiful in the country than they are now, a watch was kept at Spurn Point, as well as other places, for the purpose of informing the neighbourhood of their arrival; and there is a well-authenticated story that on one wild October Sunday morning, whilst the inhabitants of a little village on the coast, a few miles from the Point, were at their morning devotions at the parish church, the watchman rushed in, to the great amazement of the more serious portion of the congregation, with the exciting intelligence, "cocks is comed."

Lark, Tree Sparrow, Greenfinch and Linnet.—October 10. Now plentifully distributed in the marsh stubbles. The larks in small straggling flocks have been coming in all the morning: and I also noticed a flock or two of tree sparrows.

Shorteared Owl.—October 24. One shot early this morning on the embankment.

Fieldfare and Blackbird.—October 28. Flocks of fieldfares have arrived. 29th, early morning. Large flocks of these birds on the stubbles near the coast, and others flying over. With the fieldfares many blackbirds have come: a small bush near the sea-embankment seemed nearly alive with them; I rode up to it and counted fifteen fly out, all males, I believe, but two. They rose to a great height, and flew S.W., the same direction the fieldfares had taken. 31st. The hedgerows in the enclosed district bordering the marshes swarm with blackbirds; they fly out a dozen together.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,
November 1, 1870.

Leadenhall Market. By J. H. GURNEY, jun., F.L.S.

I CANNOT help thinking that many ornithologists are unaware of the rarities which are exposed for sale in Leadenhall Market. A few dealers used to make a practice of visiting the great emporium of wild-fowl, and I am informed that formerly one of the principal London bird-stuffers had a standing order for all rare birds; but now I see Pomarine skuas hanging for weeks without a purchaser, and many other rare birds mutilated to make skulls or plumes. There is nothing I like less than seeing good specimens wasted, and many of the birds which are in the market at this time of the year are as fresh and clean as need be.

In the hope of inciting others to look out now that the winter is approaching, I will enumerate what I have picked up this autumn, during the short space of three weeks.

On the 3rd of November I bought a spotted redshank, for which I gave one shilling: of course the owner did not know it from a common one: in the same way many a rare bird may be bought for a trifle. On the 10th I got an immature night heron; it was perfectly fresh and clean. Redthroated divers have been I may say abundant; I must have seen upwards of a score, but of course none of them were in full plumage.

I have also not failed to notice marsh harriers, greenshanks, long-tailed ducks and storm petrels; but I left them in the market, as I did not know any friend who wanted them.

What I valued most was a female capercaillie assuming male plumage, never having seen one in the flesh before, and indeed only *one* stuffed. All the male capercaillie are now in full plumage, and some magnificent specimens have been sent over; but it is very rare to get them with perfect wings. On the 3rd I bought an old male weighing nine pounds and a half, probably the heaviest which has been exposed for sale this season.

Of course among the unusual number of gray phalaropes which have occurred this autumn some have found their way to Leadenhall, and I got one fine old bird.

But the feature of the month has been the uncommon abundance of the Pomarine skua. Between the 19th and the 26th I saw seven, and subsequently an eighth specimen; one was from Holland, one from Wisbeach, and the remainder from Yarmouth. A very respectable

dealer told me this, and I took particular pains to ascertain if it was the truth. As a rule, they do not think it worth while importing gulls from abroad. With these birds was one specimen of the so-called common skua: it was entered in the paper which had come with the game as a "Mother Bing."

I bought a *Nyroca* on the 19th, but it is too early yet for ducks. I have scarcely seen one in complete plumage, with the exception of a consignment of eiders from the Orkney Islands. When the winter sets in they will come in plenty, and if we have a hard frost the market will be inundated.

The various species of geese are, however, already beginning to be more or less plentiful. I observed some very heavy graylags on the 21st in Smithfield, which I had reason to believe were of Irish origin, and owed their immense size to domestication: they go wild and get shot, and are not to be told from genuine graylags. This view was confirmed by one of the best Irish naturalists.

I am quite certain that a large proportion of the birds in the London markets are British-killed, and the game-dealers, when they "get to know you," will give not only the exact locality, but occasionally even the names of their agents.

The birds which I have mentioned were all seen between the 17th of October and the 10th of November, and I never went more than three times in one week; but it is not what one gets at these places, but what one learns.

I know that I missed several scarce things, including a great black woodpecker and two little bitterns. Sometimes I also visited the new Smithfield Market, but there was never so much there.

J. H. GURNEY, JUN.

2, Beta Place, Alpha Road, N.W.,
November 11, 1870.

Quails in Pembrokeshire. By THOMAS DIX, Esq.

HEARING early in September that several quails had been killed in this neighbourhood, I was induced to make further inquiries, and with the kind assistance of my friend Mr. John Phillips, of Newcastle Emlyn, I have obtained a list of at least three hundred and thirty, killed by only eighteen sportsmen, in the counties of Cardigan and Pembroke. The total number bagged it is impossible to get at; but

I have no doubt we may safely consider four or five times the number were actually killed.

I am, however, inclined to believe the quails were most numerous in the North of Pembroke and in Cardiganshire, as only one or two have been seen in the South part of Pembroke, and these were most likely migrating. Nearly the whole were shot in September, for early in October several gentlemen carefully hunted for them without success.

I heard of the first bird about the middle of July, when as I was riding with a gentleman near Blaenfosse, he exclaimed, "There goes a quail!" It dropped behind a bank before I could see it, but I have no doubt as to his being correct: he not only knows the bird, but in the same field, when the barley was cut, about the 14th of August, two nests were found; one contained eggs; near the other nine young ones, just hatched, were seen; these remained near the same spot for some time. Another nest with eggs was found within a day or two of the above date, and not more than two hundred yards distant.

I also heard of three nests at Nold-y-ram, near Newcastle, and three others near Llandyssil, but I have not been able to get the dates.

Colonel Pryse, of Pythyle, in a letter to Mr. Phillips, says the quails bred freely, and Mr. Brenchley, of Glaneirw, tells me there could be no doubt they bred in his district, as early in September the old and young birds were of quite different sizes.

I cannot ascertain that quails have ever before been known to breed in this part of Wales, though it is not unlikely they may have done so in a few instances. In Mr. Brenchley's note he says, "they have been steadily on the increase throughout our part of Cardiganshire the last four years;" but I am bound to say his opinion is not confirmed by any other observation; only one or two gentlemen mention having previously killed them: one says he shot two twenty years ago, and has only seen two since until this year. It is certain the number this year is altogether unprecedented, for all agree that it is exceptional to see them during the shooting season; nor have they been found in the winter, which, considering the usual mildness of the climate, might naturally be expected were they regular visitors.

It is to be regretted that no one noticed this bird from its call-note, as then we might be able to approximately guess the time when the invasion occurred, and possibly in some measure account for it.

I am inclined to believe a horde were from some cause driven out of their ordinary course in their spring migration, and came west until stopped by the sea. If, on the contrary, there is a regular increase, we shall doubtless have them here next summer in great numbers, for although many were killed they bear no proportion to the numbers which escaped.

THOMAS DIX.

Llwynbedw, Kenarth,
November 10, 1870.

Extracts from a Memoir intituled 'A Monograph of the Alcidae.'
By ELLIOTT COUES, A.M., M.D.

(Concluded from S. S. 2378.)

GENUS LOMVIA (*Ray*), *Brandt*.

Bill shorter than the head, longer than the tarsus, straight or slightly decurved, usually very slender, much compressed, culmen regularly decurved in its whole length, rictus moderately and very gradually decurved, gonys straight, or even slightly concave in outline, very long, nearly as long as the culmen; a groove in the side of the upper mandible near its tip; commissural edge of upper mandible greatly inflected. Nasal fossæ scarcely apparent, fully feathered, the nostrils wholly obtected by feathers. Feathers on side of lower mandible retreating in a straight line obliquely upwards and backwards from interramal space to rictus. Wings moderately long; tail exceedingly short, the latter contained about three and two-thirds times in the length of the former from carpus to end of longest primary; tail much rounded. Tarsus much compressed, posteriorly and laterally reticulate, anteriorly scutellate, much shorter than the middle toe and claw. Outer and middle toes about equal in length; the claw of the latter much larger than that of the former; tip of inner claw reaching base of middle one. Claws compressed, moderately arched, acute, the outer one not grooved on its outer face, the middle one greatly dilated along its inner edge. A furrow in the plumage behind the eyes.

The genus as here constituted is restricted so as to comprehend only troile and the species intimately related. It differs from *Uria* proper in several points, some of them of decided importance. For the benefit of those who may be sceptical regarding the propriety of

separating the two forms as genera, their distinctive characters are here antithetically tabulated:—

URIA (*grylle*).

Bill about equal to the tarsus, moderately compressed.

Rictus straight, except just at tip.

Gonys straight, half as long as culmen.

Upper mandible not grooved.

Tomial edges of upper mandible scarcely inflected.

Nasal fossæ wide, deep, mostly naked; nostrils partially covered with feathers.

Feathers on side of lower mandible forming a salient rounded outline.

Tail short, slightly rounded, contained $2\frac{1}{2}$ times in the wing.

Tarsus entirely reticulate.

Tarsus scarcely shorter than middle toe without claw.

Outer face of outer claw grooved.

Size moderate; no postocular furrow in the plumage.

LOMVIA (*troile*).

Bill much longer than the tarsus, much compressed.

Rictus decurved for great part of its length.

Gonys concave, nearly as long as culmen.

Upper mandible grooved near the tip.

Tomial edges of upper mandible much inflected.

Nasal fossæ narrow, shallow, feathered; nostrils covered with feathers.

Feathers on side of lower mandible in a straight oblique line.

Tail very short, much rounded, contained $3\frac{1}{2}$ times in the wing.

Tarsus anteriorly scutellate.

Tarsus much shorter than middle toe without claw.

Outer face of outer claw not grooved.

Size large; a postocular furrow in the plumage.

Species (4?)

- I. Depth of bill opposite nostrils not more than a third of the length of culmen.
- | | | |
|--|---------|-------------------------|
| No white on sides of head; bill slender, not dilated at base; culmen, rictus and gonys much curved | - - - - | 1. <i>troile</i> . |
| A white ring and line on sides of head; bill as in <i>troile</i> | - - - - | 2. <i>ringvia</i> . |
| No white on sides of head; bill stout, dilated at base; culmen, rictus and gonys nearly straight | - - - - | 3. <i>californica</i> . |
- II. Depth of bill opposite nostrils more than a third of the length of culmen
- | | | |
|-----------|---------|---------------------|
| - - - - - | - - - - | 4. <i>svarbag</i> . |
|-----------|---------|---------------------|

Lomvia troile (Linn.), Brandt.—Habitat: European and American coasts and islands of the North Atlantic, to or beyond 80° N. On the American coast breeds from Nova Scotia northward. "Its most favourite breeding-places south of the Straits of Belle Isle, are the Funk Islands, off the coast of Newfoundland, Bird Rock, near the Magdalen Islands, in the Gulf of St. Lawrence, and a number of small islands, generally called Murre Rocks, between Meccatina and the Esquimaux Islands, on the north shore of the Gulf" (Bryant). In

winter to the extreme southern coast of New England. Specimens in all American cabinets.

Adult, summer plumage.—Head and neck all around rich dark brown, which changes on the back of the neck into dark slaty brown, the colour of the rest of the upper parts: this hue is nearly uniform, but most of the feathers of the back and rump have usually just appreciably lighter and more grayish brown tips. Secondaries narrowly, distinctly tipped with pure white. Exposed portions of primaries dusky blackish, the shafts of the few outermost, and the greater part of the inner webs of the whole, lighter (more grayish brown), tending to grayish white towards the bases. Under wing-coverts mostly white, variegated with dusky along the edges of the wing, and the greater coverts mostly of this latter colour. Entire under parts from the throat pure white; the whole length of the sides under the wings streaked with dusky or slaty brown. Bill black; mouth yellow; iris brown; legs and feet blackish.

Adult, winter plumage.—As before; the rich brown of the head darker in hue, and more like the rest of the upper parts; the white of the under parts extending to the bill, upon the sides of the head to or slightly above the level of the commissure, upon the side of the neck so far around as to leave only a narrow isthmus of dark colour, which is somewhat interrupted by white mottling. The white shades gradually into the darker colour, without a trenchant line of demarcation, and varies greatly in its precise outline. Usually a pretty-well defined spur of dark colour runs out backwards from the eye into the white of the sides of the occiput, the spur occupying the borders of the postocular furrow in the plumage. On the sides of the lower neck, just in advance of the wings, the dark colour extends in a point further than it does higher up, showing the extent of the dark brown of the summer vesture.

Young, of the first winter, are coloured precisely like the adults, but may be always distinguished by their much shorter and slenderer bills, which are in great part light coloured (yellowish); the feet are also much tinged anteriorly with yellowish. Fledglings are brownish dusky, the breast and abdomen white; and with a few dull whitish streaks upon the head and hind neck.

Dimensions: adult.—Length about 17·00; extent 30·00; wing 8·00; tail 2·25, tarsus 1·40; middle toe and claw 2·10; inner toe and claw 1·70; outer toe and claw 2·00; bill along culmen 1·75, along rictus 2·50; along gonyx 1·15; depth at base ·55; width at same point ·30.

Bill of young, first winter: culmen 1·50; rictus 2·25; gonys ·90; depth at base ·45; width at base ·25.

This species is well known to vary to a certain degree in size, and in the precise shape of the bill. The dimensions given above represent very nearly the average of a large suite of specimens measured. In colours, the variations, though considerable, are unimportant, consisting in the difference in shade of the colours of the upper parts, and the difference in precise outline of the dark and light colours about the head and neck, in summer as well as in winter specimens. Specimens just before the renewal of the feathers have the upper parts distinctly barred or waved with gray, owing to the fading of the tips of the old feathers; and the wing and tail feathers light dull gray. The difference in intensity of coloration depends chiefly upon season, though individual peculiarities may be observed. Very high plumaged birds have the upper parts almost uniform in hue.

The synonymy of this species is very extensive, and somewhat intricate, though it is possible to collate it with much accuracy and certainty, provided more labour be bestowed than the importance of the matter warrants, as seems to the writer to have been the case in the present instance. In consequence of the peculiarly obvious nature of the characters which distinguish the several closely allied species from the present one, even the brief diagnoses of the most antiquated authors may be recognized and identified, in the majority of instances. But it is curious to note that the various names most in vogue for two or three species of this genus have been so frequently interchanged, and so variously applied, not only in a specific, but in a generic sense, that they have really come at last to mean nothing more than simply murre or guillemot. It is absolutely necessary to refer to a writer's description, or his authorities quoted, before we can have any idea to what species he alludes under any given name—certainly a very discouraging state of affairs, and one not placing Ornithology in a very creditable light.

The present species is Linnæus' troile of Fn. Suec. 1761, and S. N. 1766, and is so regarded by most writers. It is the lomvia of Brünnich, which name is usually adopted by those writers who date Linnæus' prerogative of priority at 1766. It is minor of Gmelin, who to a description of this species adds the synonyms of two others. It is not troile of Brünnich, nor lomvia of Linnæus.

Lomvia ringvia (Brünn.), Brandt.—Habitat: American and European coasts and islands of the North Atlantic. On the American

coast breeds in the Gulf of St. Lawrence; in winter ranges south to the southern extremity of New England. Habitat the same as that of *L. troile*, with which it is usually found in intimate association. Specimens in Mus. Acad. Philadelphia; Mus. Smiths. Inst.; Cab. G. N. Lawrence.

Absolutely identical with *L. troile*, except in having a white ring around, and white line behind, the eye. The white ring occupies the margins of both eyelids, forming a perfect circle, posteriorly continuous with the white line which occupies the furrow in the plumage, and is an inch or more long. The changes of plumage of this species, and the individual differences to which it is subject, are absolutely identical with those of *L. troile*: the white ring and line are usually, if not always, present in winter specimens. The white ring and line are said to be sometimes wanting; but specimens without this character cannot be distinguished from *L. troile*. None of the specimens contained in American museums offer any grounds for contradiction of the preceding statements. Such being the facts in the case, each one must be allowed to determine for himself the relationship of *L. ringvia* to *L. troile*, according to the notion he may entertain of species. In forming an opinion, the facts must be borne in mind that the two kinds of guillemots are always found intimately associated, and that they are known to copulate with each other. It is probable that the peculiar character upon which the species rests is an individual peculiarity, not a specific difference.

This bird appears to have been first described and named by Brünnich under the designation *ringvia*: *alga* of this author is the same bird without white tips to the secondaries. Subsequently several names have been proposed, each based upon the head-markings. The bird has also frequently been described as *troile*, *var.*

Lomvia californica (Bryant), Coues.—Habitat: Pacific coast of North America. Farrallone Islands, coast of California; breeding (Mus. Smiths. Inst. and Cab. H. Bryant; the types of the species): Sitka, Russian America; wintering (Mus. Smiths. Inst.)

Entirely like *L. troile*, except in the form of the bill. Bill somewhat longer than that of *L. troile*, on an average; deeper at the base, less decurved towards the tip, the several outlines straighter. Culmen straight to near the tip, then moderately deflexed; rictus almost perfectly straight in its entire length, the commissural edge of the upper mandible toward its base somewhat expanded and everted, as in *L. svarbag*, though not to the same degree; the feathers on the side

of the upper mandible not covering the tomial edge until very near the angula oris; gonys perfectly straight and very long, with a corresponding shortness of the mandibular rami; the angle at symphysis prominent, acute. "Iris white" (collector's label). Length 16·00; extent 27·00 (label); wing 8·00; tail 2·25; tarsus 1·40, middle toe and claw 2·25; outer toe and claw 2·10; inner toe and claw 1·70; bill along culmen 1·90, along rictus 2·90, along gonys 1·30; its depth at angle of gonys ·60, its width opposite base of nostrils ·35.

Winter plumage.—In this specimen (from Sitka, November, 1866) the bill is shorter (1·75 along culmen) than in the type above described, and the culmen and rictus are more decurved. The peculiar shape, however, is still preserved, the lower mandible being deep and very prominent at the eminentia symphysis. The bird is probably one of the first winter. The plumage is entirely parallel with that of *L. troile* at the corresponding season. The upper parts are fully as dark as in the average of winter specimens of the latter species. The white of the under parts extends to the bill, and along the edge of the under mandible and eyes. Further back it invades the sides of the occiput and nape, where it is separated from the white of the throat by a prominent well-defined spur of dark colour protruding from the eye.

As stated by Dr. Bryant, the dark parts of this species are rather paler in tint than the average of those of *L. troile*. But this is not a diagnostic feature, for it does not hold good in perhaps even a majority of instances. The iris, according to the label, is white; but Dr. Bryant remarks that he can hardly credit this; though if constant it would be a strong character. The only reliable diagnostic features are found in the shape of the bill, as just described. In spite of the moderate amount of individual variation to which the bill is subject, it always preserves its peculiar shape, which is sufficiently different from that of *L. troile* to attract attention without direct comparison of specimens. One feature which appears to have escaped Dr. Bryant's attention lies in the inflation and eversion of the basal portion of the tomia of the upper mandible, and their comparatively scanty feathering. This is an approach towards the peculiar character of *L. svarbag*, though by no means attaining such development as in that species: it is readily appreciable in amount in the majority of specimens. It is worthy of note that the peculiarities of bill which characterize this species as compared with *L. troile*, are very much the same as those found in the bill of *Uria Columba* as compared with *U. grylle*. It is also to be observed that the ringvia style of murre has not been found on the

Pacific coast: should the probability of its non-occurrence become a certainty, the obvious inference would be additional evidence in favour of the specific distinction of *californica*.

Numerous examples of this species are in the Smithsonian Museum; among them Dr. Bryant's types. The bird breeds much further south than its Atlantic representative, occurring in summer on the coast of California.

Lomvia svarbag (Brünn.), Coues.—Habitat: coast of the North Atlantic and Pacific, and of the Arctic Seas. Herald Island (Mus. Smiths.) In winter on the American coast south to New Hampshire (Author's cabinet) and New Jersey (Mus. Acad. Philadelphia). Breeds in the Gulf of St. Lawrence (Bryant).

Form subtypical of the genus. Bill short, hardly exceeding the tarsus in length of culmen, very stout, wide and deep at the base; culmen curved in its whole length; rictus straight for about half its length, then much deflexed; gonys long, its outline decidedly concave; mandibular rami short, eminentia symphysis very prominent; tomial edges of the upper mandible in their basal half turgid, and entirely bare of feathers. Slightly larger, and rather more robustly organized, than *L. troile*. In other respects of form identical with *L. troile*; the plumage and its changes also the same. The turgid portion of the tomia of the upper mandible flesh-coloured in life, becoming yellowish in the dried state. Length 18·00; extent 32·00; wing 8·50; tail 2·25; tarsus 1·25; middle toe and claw 2·10; outer toe and claw 1·90; inner toe and claw 1·60; bill along culmen 1·40, along rictus 2·20, along gonys ·90, depth at eminentia symphysis ·55, width at base of nostrils ·30, at angula oris ·80. The peculiar shape of the bill strongly characterizes this species. It is a rather more robust bird than *L. troile*, and upon an average a little larger. The colours of the plumage are not very appreciably different; perhaps slightly darker, and tending a little more decidedly towards a slaty or plumbeous hue, particularly in winter. The seasonal changes are precisely the same. The only decided difference in colour lies in the whitish or yellowish hue of the expanded tomia of the upper mandible.

Brünnich's guillemot appears to be the most boreal species of the genus, frequenting the Arctic Seas, as well as more temperate latitudes. At the same time it has been found further south in winter, on the Atlantic coast of North America, than the other species; and is of frequent occurrence on the United States coast at that season. It is also of constant occurrence in the North Pacific.

This is unquestionably the *Alca lomvia* of Linnæus, 1758. The name should stand for the species were it not now in use for the genus. It has been more usually employed for *troile*. The *troile* of Brünnich is unmistakably this species, but is preoccupied by its Linnean application for the common species. *Svarbag* of Brünnich comes next in order: this is based upon the winter plumage, and must stand as the specific designation of the bird. Pallas named it *Cephas arra* in 1811, and Sabine renamed it *Uria Brünnichii* in 1818; both these names, but particularly the latter, are in very general employ at the present day. *Francsii* of Leach (1818), also this species, has never had much of a run with writers.

A List of the Insects collected by J. K. Lord, Esq., in Egypt, along the African Shore of the Red Sea and in Arabia; with Descriptions of the Species new to Science. By F. WALKER, F.L.S.

(Continued from Zool. S. S. 2381).

Suborder HOMOPTERA.

Fam. CICADIDÆ.—Gen. CICADA, *Linn.*

31. *Tamarisci*. *Male and Female*.—Yellow. Head black between the eyes; fore part with two black stripes and two exterior black spots, the stripes connected towards the rostrum, which is black except at its base. Prothorax luteous; middle part black, with an abbreviated black stripe and two posterior black spots; two black lateral stripes. Scutellum with three black stripes; middle stripe dentate on each side, slightly forked at the hind end. Abdomen reddish; segments towards the base testaceous, with yellow hind borders; a stripe of transverse black spots. Wings pellucid; veins of the fore wings black, with a few yellow bands, wholly yellow towards the base and along the costa; veins of the hind wings pale yellow, submarginal connecting vein black. Length of the body 11 lines. Wâdy Gennèh. Wâdy Ferran.

Fam. DELPHACIDÆ.—Gen. DELPHAX, *Fabr.*

32. *Dorsalis*. Testaceous. Thorax with a whitish stripe. Legs very pale yellow. Wings pellucid; veins pale. Length of the body $1\frac{1}{4}$ line. Cairo.

Fam. FLATIDÆ.—Gen. PÆCILOPTERA, *Latr.*

33. *Indicatrix*. Testaceous. Head obtusely triangular, quadrilateral, the sides slightly concave. Prothorax arched. Mesothorax

angular in front. Fore wings broad; costa dilated and rounded towards the base; interior border straight; tips slightly rounded; no angles; a few series of transverse veinlets. Hind wings pellucid; veins white. Length of the body $3\frac{1}{4}$ lines. Mount Sinai.

Fam. APHROPHORIDÆ.—Gen. PTYELUS, *Lep. et Serv.*

34. *Adustus*, Walk. Cat. Hom. 3, 710. Var.? Dahleck. Inhabits W. Africa.

Fam. IASSIDÆ.—Gen. IASSUS, *Fabr.*

35. *Lineolifer*. Æneous-testaceous. Face with a whitish line, on each side of which there are whitish transverse streaks. Vertex and prothorax with some brownish speckles. Prothorax with five whitish stripes. Scutellum brown, with a tetragonal whitish mark, which emits a streak on each side and includes two anterior brown points and two posterior brown dots. Legs pale testaceous, striped with brown. Fore wings pale testaceous, with some longitudinal fusiform brown ringlets. Hind wings white. Length of the body 1 line. Cairo.

Fam. BYTHOSCOPIDÆ.—Gen. BYTHOSCOPIUS, *Germ.*

36. *Despectus*. Pale yellow. Fore wings yellowish hyaline. Hind wings milky white, hyaline. Length of the body $\frac{4}{3}$ line. Much more slender than *B. virescens*. Cairo.

Order NEUROPTERA.

Fam. HEMEROBIDÆ.—Gen. CHRYSOPA, *Leach.*

1. *Congrua*, Walk. Cat. Neur. 2, 238. Cairo. Wâdy Nash? Mount Sinai? Inhabits W. Africa. The individuals from Wâdy Nash and from Mount Sinai may be another species.

Fam. MYRMELEONIDÆ.—Gen. MYRMELEON.

2. *Appendiculatus*, Latr. Gen. iii. 193. Tajura. Inhabits S. Europe.
3. *Variegatus*, Klug, Symb. Phys. Dec. 4, pl. 30, f. 4. Wâdy Nash. Harkeko. Inhabits S. Europe.
4. *Africanus*, Ramb. Hist. Neur. 395. Cairo. Inhabits S. Africa.

Fam. PANORPIDÆ.—Gen. BITTACUS, *Latr.*

5. *Italicus*. *Panorpa Italica*, Müller, Manip. Ins. Taur. ed. Allioni, Misc. Taurin, iii. 194. Harkeko. Inhabits S. Europe.

Fam. NEMOPTERIDÆ.—Gen. NEMOPTERA, *Latr.*

6. *Halterata*. *Panorpa halterata*, Forsk. Descr. Anim. 97, pl. 25, f. 2. Wâdy Nash. Mount Sinai. Inhabits Syria, Bagdad, Egypt, Sierra Leone.

7. *Alba*, Oliv. Enc. Meth. viii. 179. Wâdy Gennèh. Inhabits Bagdad.

Fam. TERMETIDÆ.—Gen. EUTERMES, *Hagen*.

8. *Lateralis*. Termes lateralis, Walk. Cat. Neur. iii. 532. Mount Sinai. Inhabits also Sierra Leone.

Fam. EPHEMERIDÆ.—Gen. CLOEON, *Leach*.

9. *Diptera*, Linn. Syst. Nat. ii. 907. Cairo.

F. WALKER.

Errata.—Zool. S. S. 2380, for *Siticus* read *Sitiens*.

Fam. BRADYPORIDÆ.—GENUS HETRODES, *Fischer*.

Hetrodes horridus, Klug. Gezech Pyramids.

This species was omitted in the List of Orthoptera collected by J. K. Lord, Esq.—
—*F. Walker*.

Ornithology of Scilly Islands in October.—The following extract from my nephew's letter to me from Scilly, where he has been staying for snipe shooting, may be acceptable. Very few snipes, and no woodcocks, have as yet appeared, but a large migration of jack snipes enabled him to fill his bag with about fifty in a week:—"These non-productive westerly gales are enough to spoil the temper of any shooting naturalist: nothing has come, and the few snipes remaining from our shooting are gone as well as other things. The coast-guard men say a great white heron has frequented Hedge Rock for some time, but they have not seen it for a fortnight. What a capture this would have been! Hedge Rock is a great resort of herons: there were several there to-day; and there was a beautiful flock of curlews,—I should say two hundred or three hundred birds,—which a tiercel was in pursuit of, though he did not strike one. I do not yet know how a peregrine works a bird that falls into the water—whether he picks him off the sea or not. The falcon to-day contented himself with breaking up the flock of curlews into several parties, which displayed their powers of flight to great advantage, shooting about more like rooks in a gale of wind than anything else. The herons sat still on the rock, probably knowing that the peregrine will not strike a sitting bird. I never saw such a quantity of greenfinches as there are all over the islands: two barrels into a flock of some hundreds yesterday produced thirty-three, and there were a lot on St. Martin's to-day. Whence comes this quasi-congress of *Tringidæ* and *Fringillidæ*? Nothing like it has occurred before. Since the 1st of September, 1870, we have had—*Tringæ* and *Totani*: common sandpiper (several), green sandpiper (1), curlew sandpiper (flocks), knots (several), pectoral sandpiper (5), purple sandpiper, Schinz's stint (1), buffbreasted stint (1), common redshank (several), spotted redshank (1), greenshanks (thirty or more in a flock). *Godwits*: bartailed (12), blacktailed (1). *Fringillæ*: sparrows (thousands), greenfinch (large flocks), chaffinch (usual numbers), linnets (more than usual), goldfinches (ditto)."—*Edward Hearle Rodd; Penzance, November 1, 1870.*

Autumn Migration at Scilly.—Godwits, redshanks and greenshanks and a few gray plovers were observed on Sampson Isle, Scilly, this week, and the gray phalaropes extended to the isles in common with the Cornish coasts. The usual migratory move-

ment seems to have set in this week, as hosts of fieldfares, redwings, larks, &c., have arrived at Scilly, and the first great flight of woodcocks in this neighbourhood took place on the night of Thursday, the 3rd instant.—*Edward Hearle Rodd; November 5, 1870.*

PS.—A ship put in at Scilly a few days since, and reported that at a distance of three hundred miles west of these islands they fell in with a large flock of starlings, which took the opportunity of alighting on the ship, apparently in a state of partial exhaustion. A large number were killed for the crew's use, and a considerable number stuck to the ship and remained on board till the arrival at Scilly. This flock of starlings pretty well coincided with a large flight at Scilly during this month. The great autumnal migratorial movement southward has been observed to be much later this year than usual. These great early flights may I think be regarded as the great seasonal migration, the general tendency of the mass of birds being to southern climes, the West of England, Ireland and the Scilly Isles being mere resting places previous to their final departure. The succeeding flights in winter and severe cold weather, when we receive large accessions of different species in flights, depend upon a different impulse mainly, *viz.* the seeking food and warmth from an actual sense of deprivation of the means of sustenance. This is particularly remarkable in the fieldfare and redwing. These flights retire again, when the weather breaks up, back to their old eastern haunts which they had left, as I have often remarked in snipes, and which, on the appearance of the first smart frost, leave the wild moors on Dartmoor and those about the Cheesewring and Dosmary Pool for the more genial bottoms in the Land's End district, including the Scilly Isles.—*Id.; November 19, 1870.*

Merlins in Ireland.—Large flights have visited this and the neighbouring county of Wicklow this autumn. I more frequently see them than any other hawk on the bogs, moors, hills and sea-shore.—*H. Blake-Knox; Dalkey, County Dublin.*

Osprey in County Kerry.—A fine example in Mr. Williams' shop, Dame Street, Dublin, shot by a coast-guard's son near Tralee Bay about the end of last September.—*Id.*

Nesting of Motacilla flava.—If Mr. Gurney will re-read the paragraph (Zool. S. S. 2343) he will observe that *two* of the nests of *M. flava* were taken last year, and as two or three pairs of these birds have been noticed here from year to year, some mature specimens of which have been shot and preserved, he will more easily understand that it is possible for them to have bred three times here. If acquainted with our British wagtails, he should also know that though *M. flava*, save for its gray head, might easily be mistaken for *M. Rayi* by a casual observer, it could by no possibility be mistaken for *M. boarula*, which is comparatively common here, which has not a gray head, has not a straight hind claw, has three partly white feathers on each side of the tail, instead of only two, as in *M. flava* and *M. Rayi*, and, were it only by the length of its tail, is easily distinguishable from either of them, the difference in length being an inch; neither do I think that it is the habit of *M. boarula* to nest in swampy meadows, as *M. flava* does.—*J. Watson; Gateshead, November 2, 1870.*

Shore Larks near London.—An entomologist has presented me with a living male shore lark, and I have seen two others in the possession of Mr. Pullen, of Club Row, and heard of several more. Concerning the one I have in confinement all that I have been able to learn respecting it is that it hovered awhile over a bird-catcher, whose nets were spread in Hackney Marshes, until its peculiar shrill note attracted his

attention: it seems to have been attracted by the fluttering of a decoy-bird. In captivity it occasionally utters its clear ringing monotone or call-note, but makes no other attempt at a song, and I observe its wings are constantly in motion, as though it were just going to fly.—*Edward Newman.*

Shore Larks and Gray Phalaropes near Brighton.—Yesterday two shore larks (*Alauda alpestris*) were caught near Brighton, and upwards of twenty gray phalaropes (*Phalaropus platyrhynchus*) have come into Mr. Swaysland, the naturalist. These last we have been expecting for some weeks. They appear to have spread along the south coast in some numbers.—*Geo. Dawson Rowley; Chichester House, Brighton, November 3, 1870.*—From the 'Field' of November 12th.

Snow Bunting in Middlesex.—A snow bunting was shot in one of the brick-fields here last Tuesday, the 1st instant. It was brought to me before it was quite dead. It was a male, and the skin is now in my possession.—*C. F. W., jun.; Southall, Middlesex, November 7, 1870.* [We have already received from South Wales a snow bunting, shot on Plinlimmon on the 5th instant.—*Editor of 'Field.'*]—*Id.*

Common Wren at Spurn Point.—The common wren was this year more than usually numerous on the Spurn sand-hills early in October. I am informed by persons living at the Point that they appear annually in this month, usually preceding the woodcocks, and their "pilots," the goldcrests: they only remain for a few days. This coincides with what I have observed of their movements on the opposite coast of Lincolnshire.—*John Cordeaux.* [Received too late for insertion in Mr. Cordeaux's "Notes."—*E. Newman.*]

Hooded Crow at Scilly.—Two of these birds were observed at Scilly during the past week.—*Edward Hearle Rodd; November 5, 1870.*

Yellowbilled American Cuckoo and Gray Phalaropes near Aberystwith.—A specimen of the yellowbilled American cuckoo was found dead in a wood near Aberystwith, on the sea coast, on the 26th of October. It was a male, in good plumage, but very emaciated, and had been dead about ten days, but fortunately was not too far gone for preservation. Great numbers of gray phalaropes have been driven to these coasts by the late gales: I have seen as many as ten or twelve together within the last week.—*George Weir Cosens; Ynyshir House.*—'Field' of November 12th.

Habits of the Coran Bustard (Eupodotis afra).—The coran is about the size of a small guinea-fowl, and from practical experience I must refute what is mentioned of its habits in Wood's 'Illustrated Natural History,' the account there given (at p. 661) being derived from Captain Drayson, R.A. I have seen it often in flocks, sometimes as many as twenty together: the flight is certainly slow, but often very long, and though it is seldom molested, not being much esteemed for the table, it is one of the most cautious birds in South Africa, being almost impossible to approach within shot, and when it flies up screams so that every bird within hearing gets up also. I have very often in this way been deprived of a shot at a buck. The only chance of shooting the coran is before it takes the first flight, then you sometimes ride near one asleep; but they require a very heavy charge of shot to kill them, often getting up again after having been knocked down. After the first flight you ride up to the spot the bird has pitched on and look about for it, and in a second you see it rise about a hundred yards off, as it always runs away from the place where it has alighted. They are to be found in great numbers all along the Great Fish River, on each side of it, for two or three miles from the water's edge, in the short bush that grows in that particular

part of the country. What is mentioned by Wood about the Pauw is quite correct.—*Benj. F. Bradshaw; Niebeck, District Albany, Cape of Good Hope, September, 1870.*

Ground Parrot or Kakapo of New Zealand.—During the whole time that this bird has been in my possession it has never shown the slightest sign of ill temper, but has invariably been good-humoured and eager to receive any attention. Its playfulness is remarkable. It will run from a corner of the room, seize my hand with claws and beak, and tumble over and over with it exactly like a kitten, and then rush back to be invited to a fresh attack. Its play becomes sometimes a little severe; but the slightest check makes it more gentle. It has also, apparently, a strong sense of humour. I have sometimes amused myself by placing a dog or cat close to its cage, and it has danced backwards and forwards with outstretched wings, evidently with the intention of shamming anger, and has testified its glee at the success of the manœuvre by the most absurd and grotesque attitudes. One trick especially it has, which it almost invariably uses when pleased, and that is to march about with its head twisted round and its beak in the air—wishing, I suppose, to see how things look wrong way up, or perhaps it wishes to fancy itself in New Zealand again. The highest compliment it can pay you is to nestle down on your hand, ruffle out its feathers, and lower its wings, flapping them alternately, and shaking its head from side to side: when it does this it is in a superlative state of enjoyment. I do not think it is quite correct to say that it has dirty habits; certainly it is not worse in this respect than an ordinary parrot. I am surprised to find that during the time when it was in the Zoological Gardens it very rarely showed itself in the daytime. My experience has been the reverse of this. It has generally been lively enough during the greater part of the day, though not quite so violent and noisy as at night. I had this bird at Saltburn, in Yorkshire, during the summer, and any of your readers who were at that place in the month of August will remember seeing this bird at the bazaar held in aid of the district church, on which occasion its playfulness never flagged during the whole day. This may partly have been due to excitement at seeing so many strange faces; but it also no doubt felt the excellence of the cause (recollect Sir G. Grey testifies to its cleverness and intelligence), and exerted itself accordingly to help the church building-fund.—*G. S. Sale; 138, Cambridge Street, Pimlico, November 3, 1870.*—‘*Field*’ of November 12. [It is perhaps not generally known that a specimen of this singular bird, which seems to combine the characters of parrot and owl, was living in the Zoological Gardens, Regent’s Park, for several weeks: it was extremely shy, rarely venturing to show itself by daylight, and requiring the stimulus of a keeper’s attentions before it would make its appearance before an expectant audience. A clever account of the bird, accompanied by an admirable figure, appeared in the ‘*Field*’ of Nov. 5.—*E. Newman.*]

American Bittern at Cahir, Ireland.—Mr. J. White, of Cintra Glennegeary, Kingstown, has kindly sent me particulars of the capture of an American bittern, as supplied him by his friend Mr. Fennell, who owns the bird. It was seen on the morning of the 31st of October, by one of Mr. Fennell’s daughters, washing amongst the evergreens of Garryroan. The servant man went out and shot it. The same man heard it during the night making strange sounds like a person groaning. A river abounding with small fish runs near Garryroan.—*H. Blake-Knox.*

Esquimaux Curlew in Dublin Market.—On the 21st of October last Mr. W. R. Duff, of Corrig Castle, Kingstown, saw in Mr. M’Ardles’ shop, in William Street, Dublin, an Esquimaux curlew. Mr. Duff mentioned the circumstance to a friend,

Mr. Bushe, telling him to secure the bird for his collection. The bird remained till the 25th of the same month exposed for sale, when Mr. Bushe directed Mr. Glennon, of Wicklow Street, to procure it and have it set up for him. The bird was in a putrid state when purchased, and Mr. Glennon found great difficulty in making a tolerable specimen of it. I examined the bird on the 5th of this month: there is no doubt of its identity, and in all probability it was killed in Ireland, as no game is sent from America at this season, nor is it at all likely such a bird would be at any time imported for food, and certainly this bird was not sent to be sold as a rarity, for Mr. Duff tells me sixpence purchased it. Ireland is by no means so far south as its winter haunts in America, Latham mentioning one killed at Rio de Janeiro. Supposing it driven by storm from Greenland to Iceland, the distance is not so insurmountable as would at first appear. I am of opinion that most of the American sea-fowl found on our shores come to us by that route. This is the second occurrence of this bird in Britain, the former specimen occurring in Scotland, as mentioned by Yarrell.—*H. Blake-Knox*; November 7, 1870.

PS.—Since my note on the occurrence of the Esquimaux curlew in Dublin Market, I have heard from Mr. Duff that the bird belongs to Sir Victor Brooke.—*H. Blake-Knox*.

Schinz's Stint at the Lizard.—I observed yesterday, in the hands of Mr. Vingoe, another specimen of this small stint in the same state of plumage as the last reported. The colour of the legs may be described as black, tinged with olive.—*Edward Hearle Rodd*; October 30, 1870.

Schinz's Sandpiper in North Devon.—I yesterday received a specimen of this rare sandpiper, which had been shot on the river between Barnstaple and Instow: it was in change of plumage, probably in the same state as the one mentioned by Mr. Rodd in the November number of the 'Zoologist' (S. S. 2384), where the principal distinctions between this bird and the purre are pointed out. I failed, however, to find any difference in the colour of the legs: those of all the examples of the purre I have being quite as dark as the Schinz's sandpiper: probably in perfectly fresh specimens of both the difference might be detected.—*Cecil Smith*; *Lydeard House, Taunton*, November 7, 1870.

PS.—On the 10th of November another example of Schinz's sandpiper was sent to me from Barnstaple. It was forwarded to me in the flesh this time, so I have been able to preserve the sternum, which differs materially from that of the purre, as there is only one notch on the hinder part of the flat portion of the sternum, whilst in that of the purre there are two very distinct and rather deep notches.—*Id.*; Nov. 14.

Sternum of Schinz's Sandpiper.—I had to-day an opportunity of examining the sternum of another specimen of Schinz's sandpiper, also killed at Barnstaple: it differed from the one mentioned in my last note in having two notches in the hinder part of the sternum: not so conspicuous, indeed, or so deeply indented as in the purre, but still distinctly two. What may be the reason for this difference in two birds of the same species, and in all other respects exactly similar, it may be difficult to say; possibly it is owing to age. I have seen something of the same sort of difference in the sternum of the Norfolk plover.—*Id.*; November 19, 1870.

Curlew Sandpiper near Aberystwith.—On the 23rd of August I received a curlew sandpiper (*Tringa subarquata*), which was shot near Aberystwith by Mr. Hunt, of Hopwood, Worcestershire.—*A. M. Browne*; *Birmingham*.

Ruff in Dublin.—It would appear that a flight of ruffs have visited this coast. A female, in immature plumage, fell to my gun early in September on the north strand of the bay; and another, apparently a young male, was killed by Mr. Williams, of Dame Street, in the same locality, and about the same time. It may be worth recording that the blacktailed godwit, though not a rare bird, has occurred both on this coast and in the neighbourhood of Belfast this autumn.—*H. Blake-Knox.*

Gray Phalarope in Wales.—On the 22nd of October I received for preservation two fine female specimens of this beautiful little migrant: they were shot at Aberystwith a day or two previously. They were in perfect winter plumage, and their stomachs contained hardly any food.—*A. M. Browne.*

Abundance of the Gray Phalarope.—I hear of phalaropes occurring plentifully in many places. The birdstuffer at Barnstaple speaks of upwards of sixty having been brought to him for preservation.—*Murray A. Mathew; Bishop's Lydeard, Taunton, November 3, 1870.*

Gray Phalaropes in Somerset.—In addition to the one already mentioned by me (S. S. 2385) I have seen lately eleven other specimens of the gray phalarope, namely, one shot while swimming on the river near Taunton, and brought to Mr. Bidgood, at the Museum; four shot by Mr. Haddon at Stolford; and six which were brought to a birdstuffer at Taunton; one of them he told me had been caught in a bird-batting-net [Query.—*E. N.*], whilst swimming on a small pool of water near the town. In the neighbouring county of Devon I hear they have been very much more plentiful.—*Cecil Smith; November 7, 1870.*

Gray Phalaropes in County Dublin.—The gray phalarope made its appearance along the east coast of Ireland in some numbers during October. In this county I have seen several, but am happy in recording but one example as being killed, and that by a friend who struck it with a stone in Kingstown Harbour.—*H. Blake-Knox.*

Black Swans in Lincolnshire.—On Wednesday last, the 2nd instant, my son, H. J. Sutton, shot on the lake here a fine specimen of the black Australian swan: C. Ingram, gamekeeper, shot its companion. The birds were perfectly wild, in fine plumage, and bore no traces of having been reared in confinement. They have been forwarded for preservation to Mr. E. Ward, Wigmore Street.—*Robert Sutton; Scavby Hall, Brigg, Lincolnshire, November 7, 1870.* [Although the birds showed no signs of having been in confinement, there can be little doubt as to their having made their escape from some private grounds.—*Editor of 'Field.'*]

Boar-fish at the Scilly Isles.—If the packet does not go to the bottom to-morrow you will receive a specimen of the boar-fish (*C. aper*), which I found in an exhausted state on the Trescoe shore after one of the late gales. I was obliged to put it in spirits to preserve it, and the superb colour has completely faded. I cannot describe the beautiful colour of the living fish: the most beautiful carmine above, fading below to the blush rose of the roseate tern. Yarrell only mentions two occurrences, one of which was in Mount's Bay. None of the fishermen here have ever seen the fish, so I may consider myself lucky in having made the capture. The peculiar power it has of elongating the snout is most curious.—*F. R. R.* [Communicated by Edward Hearle Rodd, Esq.]

Calling Crabs.—But what, you will ask, are calling crabs? I could tell you better by a drawing than by words; but as I have not one at hand, I must ask you to conceive a moderate-sized crab, the front of whose carapace is very broad, and almost straight, with a channel along it, in which lie, right and left, his two eyes, each on a foot-stalk half as long as the breadth of his body; so that the crab when at rest carries his eyes as epaulettes, and peeps out at the joint of each shoulder. But when business is to be done, the eye-stalks jump bolt upright, and side by side, like a pair of little light-houses, and survey the field of battle in a fashion utterly ridiculous. But as if he were not ridiculous enough even thus, he is (as Mr. Wood well puts it) like a small man gifted with one arm of Hercules, and another of Tom Thumb. One of his claw-arms, generally the left, has dwindled to a mere nothing, and is not seen; while along the whole front of his shell lies folded one mighty right arm, on which he trusts; and with that arm, when danger appears, he beckons the enemy to “come on,” with such wild defiance that he has gained therefrom the name of *Gelasimus vocans*, “The Calling Laughable”; and it were well if all scientific names were as well fitted. He is, as might be guessed, a shrewd fighter, and uses (they say) the true old “Bristol guard” in boxing, holding his long arm across his body, and fencing and biting therewith swiftly and sharply enough. Moreover, he is a respectable animal, and has a wife, and takes care of her; and to see him in his glory (they say) you should see him sitting in the mouth of his burrow, his spouse packed safe behind him inside, while he beckons and brandishes, proclaiming to all passers by the treasure, which he protects, while he defies them to touch her. Such is the “calling crab,” of whom I must say, that if he were not made on purpose to be laughed at, then I should be inclined to suspect that nothing was made for any purpose whatever.—‘*Letters from the Tropics*,’ by C. Kingsley.

[A very similar passage in Wood’s ‘*Natural History*,’ to which Mr. Kingsley refers, will be familiar to my readers.—*E. Newman*.]

The Teachings of Galls.—The reading of Professor Huxley’s presidential address to the British Association for the Advancement of Science, delivered at Liverpool, has brought to my recollection a remarkable instance of the development of active organs foreign to the normal plant, and springing from a growth of pathological origin, viz. a gall produced by the ovipositor of a *Cynips*. In Germar’s ‘*Zeitschrift für die Entomologie*,’ 1843, vol. iv. p. 405, Professor Hartig describes the gall of *Cynips lucida*, *Kollar*, at the apex of young shoots of *Q. pubescens*, as follows:—“The gall, like those of *Teras terminalis*, *Rhodites Rosæ* and *Cynips Radicis*, consists of an agglomerated cellulose mass, in which from three to thirty and more larval cells are imbedded. This many-chambered gall is in its whole circumference closely beset with thin stalks, each about two or three lines in length. Each stalk ends in a club-shaped open vesicle or gland (*Druese*) in which a sticky sap is secreted, which probably serves for nothing else than a protection from parasitic Hymenoptera.” Prof. Hartig then proceeds:—“Here organs are produced by the sting of an insect; functions appear in the organs thus formed, although the latter are quite foreign to the oak itself! It is a foreign organism which causes these formations! The rich indications this insect gives us

concerning the degree of mastery on the plant are perhaps reserved for coming centuries to interpret, when we shall possess a more intimate acquaintance with the nature of the vegetable organism and of the forces influencing it." I have but little to add to these significant words; the practical importance of this observation for the gardener is evident. The pricking of figs and other fruits is not only done by natural capriciation, but also by impatient man; his hand supersedes the insect in fertilization; his knife grafts the choice variety on the wild stock; his influence on shape, colour, habit and quality of vegetable growths is yearly becoming more extensive; and who will deny that a class of pathological forms, which has given us writing and dyeing fluids, various oils, the elm-balm and elm-water, and even eatable galls of different kinds, will not some day reveal yet greater benefits? It is much easier to disregard ancient medical lore, as for instance that of the Bedeguar, than to disprove it altogether; and worthless as they may be now, it is nevertheless true that the qualifications attributed to sundry galls by the older pharmaceutic chemists first directed attention to a field of inquiry, in which our present observers gather a gradually increasing and daily more valuable crop of practical results.—*Albert Müller, in 'Gardeners' Chronicle.'*

The Upas Tree absolved.—In Java a crater called the "Gueva Upas," or the Valley of Poison, 650 yards in circumference, also possesses a celebrity founded on the reports which attributed to the innocent emanations of the upas tree, the juice of which is used to poison arrows, the effects produced by carbonic acid. The following description explains the dull aspect of this strange place:—"The use of the upas was formerly general in all the islands, but the introduction of fire-arms has now banished it to a few savage tribes, who take refuge in the volcanic mountains with which the island is filled. These volcanoes are igneous or muddy; their unforeseen eruptions often cover large spaces with larva and mud. Sulphureous acid, and silicious springs, petrifying all the objects near, spout up from the ground. Sometimes from the top of a hill the astonished traveller all at once discovers a valley without vegetation, calcined by the sun. Skeletons of animals of all kinds lie on the ground; their posture proves that they have been seized suddenly when full of life; the tiger the moment when it had seized its prey; the vulture when he alighted on these carcasses to devour them. Thousands of insects, ants, coleoptera, cover the soil: it is a valley of death. Carbonic acid escapes by the fissures in the ground, and in virtue of its specific weight it remains invisible at the bottom of the valley; an analogous phenomenon to that of the Grotto del Cane and of Dunsthoehle, near Pymont. Man alone may cross these valleys of death on account of his head rising above the bed of gas." (From 'La Plante et sa Vie,' by Schleiden).—*Edwin Birchall.*

[It has long been known that the Upas may be cultivated in botanic gardens without the slightest injury to plants growing around or even beneath it; but Schleiden's transference of its lethal powers to the crater of a volcano bearing the same name will be new to many.—*E. Newman.*]









