

25.6.05
19

FOR THE PEOPLE
FOR EDUCATION
FOR SCIENCE

LIBRARY
OF
THE AMERICAN MUSEUM
OF
NATURAL HISTORY

THE JOURNAL

OF THE

SOUTH AFRICAN ORNITHOLOGISTS' UNION.

EDITED BY

ALWIN HAAGNER, F.Z.S.,

Dr. J. W. B. GUNNING and B. C. R. LANGFORD.

VOLUME IV.

PUBLISHED BY

THE UNION IN PRETORIA, TRANSVAAL.

LONDON AGENT:

R. H. PORTER, 7 PRINCES STREET, CAVENDISH SQUARE, W.

1908.

BOOKS
OF
SOCIETY
1847



PRINTED BY TAYLOR AND FRANCIS,
RED LION COURT, FLEET STREET, LONDON.

11. 27049. Oct 17

P R E F A C E.

WITH this number we complete the Fourth Volume of the Journal of the Union. The Editors hope that the first Migration Report published in this volume will stimulate Members to greater activity in this important matter. To our European friends we offer it as a modest beginning, trusting that we may in time throw some light upon the movements of their migratory visitors. We have to thank the Members for the support accorded us in the past, and hope that a few more of the active workers will publish in the Journal, the percentage of Members who contribute towards its contents being still very small.

THE EDITORS.

CONTENTS.

	Pages
TITLEPAGE	i
PREFACE	iii
CONTENTS	v
ROLL OF MEMBERS	vii-xii
LIST OF PAPERS IN THIS VOLUME	xiii-xiv
SUBJECT-MATTER INDEX	xv-xviii
LIST OF PLATES	xix
JOURNAL	1-137
INDEX	139-149

1
S. E.

Mrs. Leonard Hayes

Barco Stula
Roosevelt Island, U.S.A.

H. Casner
1 Gray's Inn Sq
W.C.

Le. Be. ~~Be~~ Redlman Bury
Borough of E.C. 4

Mrs. Valerie
Bishop
South Woodford

Mrs. B. ...

Genl. Cant.

S. Shephard

Sir Thomas' Hospital.

Dr. S. H. Snell

261. Trinity Rd., Wandsworth, S.W.

J. H. Buchanan Esq
Caledonian Club
Leharles Street

Geo. Booy Esq

78 Calvert Road
Great Lever, Bolton

Mr. E. Moore

1 Regent, Kensington

ROLL OF MEMBERS

AS AT 31ST AUGUST, 1908.

No.	Year of Election.	Name and Address.
1	1904	ALEXANDER, J. A., F.R.S.E.; not known.
	1905	ANDERSSON, C. L.; Box 2162, Johannesburg, Tvl.
	,,	AYRES, IVAN; Distributor of Stamps Office, Pretoria, Tvl.
	1907	BAXTER, G. L., Cameron Highlanders; Roberts Heights, Pretoria, Tvl.
5	1906	BELL, THEODORE; Downside, Epsom, Surrey, England.
	1907	BOLUS, FRANK; Sherwood, Kenilworth, Cape Town.
	,,	BOOTH, H. B.; Ryhill, Ben Rhydding, Yorkshire, England.
	1905	BOURKE, E. F.; Box 321, Pretoria, Tvl.
	1904	BRIDGEMAN, Lieut. The Hon. R. O. B.; Weston Park, Shipnal, Salop, England.
10	1907	BRISCOE, Dr. J. E.; Charlestown, Natal.
	,,	CALVERLEY, Major; Govt. Library, Govt. Offices, Bloemfontein, O.R.C.
	1908	CHAMBERS, ROLAND, R.M.; Bethulie, O.R.C.
	1907	CHUBB, E. C., F.Z.S.; Rhodesia Museum, Box 240, Bulawayo, Rhodesia.
	1906	COCH, MAX; Box 1076, Johannesburg, Tvl.
15	,,	COOPER, C. W.; Poste Restante Koppje, Salisbury, Rhodesia.
	1907	DAVIES, C. G., C.M.R.; Bizana, Pondoland, C.C.
	1904	DAVY, J. BURTT, F.L.S., &c.; Dept. of Agriculture, Pretoria, Tvl.
	1907	DAY, M. F., Lieut. K.O. Yorkshire L.I.; Cantonnments, Pretoria, Tvl.
	1906	D'EVELYN, Dr. F. W.; 2103 Clinton Avenue, Alameda, California, U.S.A.

No.	Year of Election.	Name and Address.
20	1908	DORNAN, Rev. S. S.; Bulawayo, S. Rhodesia.
	1905	DOUGLAS, A. E.; Mines Office, N ^o Kandhla, Zululand.
	„	DRAPER, E. H. U.; Box 1080, Johannesburg, Tvl.
	„	DUERDEN, Dr. J. E.; Professor of Zoology, Rhodes University College, Grahamstown, C.C. (<i>President.</i>)
25	1904	DUNCAN, A.; Box 1214, Johannesburg, Tvl.
	„	ELEMMOR, F. J.; address unknown.
	1905	EVANS, J. B. POLE-; Dept. of Agriculture, Box 434, Pretoria, Tvl.
	1904	FAIRBRIDGE, WM. GEO.; 141 Longmarket Street, Cape Town.
	„	FELTHAM, H. L. L., F.E.S.; Box 46, Johannesburg, Tvl.
30	„	FRY, HAROLD A.; Box 46, Johannesburg, Tvl.
	1907	GILFILLAN, D. F.; Box 1397, Johannesburg, Tvl.
	1905	GORDON, Capt. C. W., 5th Fusiliers; The Castle, Cape Town, C.C.
	1906	GOUGH, Dr. L. H.; Box 593, Pretoria, Tvl.
	1908	GRAHAM, FRANCIS, C.C. & R.M.; Grahamstown, C.C.
	1906	GRANT, C. H. B.; c/o British Museum, South Kensington, London.
	35	1907
35	1905	GREATHEAD, Dr. J. B.; Greystones, Grahamstown, C.C.
	1906	GRÖNVOLD, HENRIK; Nat. Hist. Museum, South Kensington, London, England.
	1904	GUNNING, Dr. J. W. B., Director Transvaal Museum and Zool. Gardens; Box 413, Pretoria, Tvl. (<i>Vice-President & Joint Editor.</i>)
	„	HAAGNER, ALWIN; Assistant, Transvaal Museum, Box 413, Pretoria. (<i>Secretary & Joint Editor.</i>)
40	1907	HALLHED, N. G. B., Lieut. K.O. Yorkshire L.I. 3rd Battn.; Egyptian Army, Khartoum, Egypt.
	1905	HALL, Capt. R.; address not known.

No.	Year of Election.	Name and Address.
	1907	HAMILTON, Major J. S.; Warden, Game Reserves, Komati Poort, Transvaal.
	1906	HAMOND, PHILIP, Lieut. 2nd Norfolk Regt.; East Dereham, Norfolk.
	1905	HATCHARD, J. G., F.R.A.S.: Loco. Drawing Offices, C.S.A.R., Bloemfontein, O.R.C.
45	1908	HEWARD, JAMES L.; Yankee-Doodle Mine, Selukwe, S. Rhodesia.
	1905	HORSBRUGH, Major B., A.S.C.; Tempe, Bloemfontein, O.R.C.
	1904	HORSBRUGH, C. B.; c/o Stuckey's Bank, Milsom Street, Bath.
	1905	HOWARD, C. W.; Dept. of Agriculture, Lourenço Marques (Delagoa Bay).
	1907	HUDSON, C. E.; Dept. of Agriculture, Bloemfontein, O.R.C.
50	„	INGLE, J. C., F.Z.S.; P.O. Sabie, Lydenburg, Tvl.
	1905	INNES, DR. WALTER, BEX.; School of Medicine, Cairo, Egypt.
	1908	IVY, J. R.; Grahamstown, C.C.
	1905	IVY, R. H., F.Z.S.; Grahamstown, C.C.
	1906	JACKSON, BEDVER; Govt. Offices, Bloemfontein, O.R.C.
55	„	JAMESON, Dr. H. L.; address not known.
	1904	JEPPE, JULIUS; Box 60, Johannesburg, Tvl.
	1905	JOHNSTON, C. McG.; Bloemfontein Club, Bloemfontein, O.R.C.
	1906	JOHNSTON, J. C.; Bank of Africa, Pretoria, Tvl.
	1905	JONES, Capt. A. C. H., 5th Fusiliers; c/o Staff-Captain, i/c Reconnaissance Surveys, The Castle, Cape Town.
60	1904	KIRBY, W.; Intermediate Pumping Station, Waterworks, Kimberley, C.C.
	„	KIRKMAN, Dr. A.; Touws River, C.C.
	„	LANGFORD, B. C. R.; Box 557, Pretoria, Tvl. (<i>Joint Editor.</i>)
	1906	LANHAM, W. R.; Box 101, Pretoria, Tvl.
	„	LITTLEDALE, Lieut. H. A. P., K.O. Yorkshire L.I.; Roberts Heights, Pretoria, Tvl.

No.	Year of Election.	Name and Address.
65	1904	LIVINGSTONE, HUGH; address unknown.
	1905	LOUBSER, M. M.; Port Elizabeth, C.C.
	1908	MALLY, C. W., M.Sc.; Eastern Province Entomologist, Grahamstown, C.C.
	1904	MARSHALL, G. A. K., F.Z.S.; Box 149, Salisbury.
	1905	MARTHINIUS, Dr. J. G.; District Surgeon, Wepener, O.R.C.
70	1906	McCUSKER, J. G.; address not known.
	1904	MILLAR, A. D., Col.M.B.O.U.; 298 Smith Street, Durban, Natal.
	1908	Mörs, F. E. O.; Box 776, Pretoria, Tvl.
	1905	MURRAY, J. P.; Maseru, Basutoland.
	1907	NEETHLING, HARRY; Department of Agriculture, Bloemfontein, O.R.C.
75	1906	NEHRKORN, ADOLF; Adolfstrasse 1, Braunschweig, Germany.
	„	NEWMAN, T. H., F.Z.S.; Newlands, Harrowdene Road, Wembley, England.
	„	NOOME, F. O.; Transvaal Museum, Pretoria, Tvl.
	1905	OBERHOLSER, HARRY C.; Biological Survey, Dept. of Agriculture, Washington, D.C.
	1904	PEASE, Sir ALFRED E., Bart.; address unknown.
80	„	PERCIVAL, A. B., F.Z.S.; Nairobi, Brit. East Africa.
	1907	PÉRINGUEY, Dr. L.; Director S.A. Museum, Cape Town, C.C.
	1905	PERSHOUSE, STANLEY, Lieut. 5th M.I. Border Regt.; c/o Miss Findlay, 9 St. Leonard's Road, Exeter, England.
	1908	PHEAR, H. H.; Box 424, Kimberley, C.C.
	1907	PICKSTONE, S. P.; Box 4820, Johannesburg, Tvl.
85	1906	POGGÉ, C.; Conservator of Forests, Windhuk, Damaraland, S.A.
	1907	PRITCHARD, A. G. R.; Box 4820, Johannesburg, Tvl.
	1904	PYM, F. A. O.; Public Museum, Kingwilliams-town, C.C.
	„	ROBERTS, AUSTIN; c/o Secretary S.A.O.U.
	1907	ROBERTS, Rev. Noel; Cathedral Precincts, Pretoria, Tvl.

No.	Year of Election.	Name and Address.
90	1908	ROBERTSON, Dr. W. ; Bacteriological Institute, Grahamstown, C.C.
	"	SCLATER, ARTHUR L. ; " Helvetia," Southern Melsetter, S.E. Rhodesia.
	1906	SETH-SMITH, D., F.Z.S. ; Editor Avicultural Magazine, London.
	"	SHEPPARD, P. A. ; Mile 23, Mzimbiti, Beira, Portug. E. Africa.
	1904	SKEA, ERNEST M. ; Box 373, Pretoria, Tvl.
95	"	SPARROW, Major RICHARD, M.B.O.U., 7th Dragoon Guards ; Rookwoods, Sible Headingham, Essex, England.
	"	SPICER, NEWTON ; Box 404, Pretoria, Tvl.
	1905	STENNING, A. N. ; address unknown.
	"	SWINBURNE, JOHN, M.B.O.U. ; Rand Native Labour Assoc., Pietersburg, Tvl.
	1904	SWINNY, H. H. ; P.O. Big Umgazi, W. Pondoland.
100	1907	SWYNNERTON, C. F. M. ; Gmgunyana, Melsetter Dist., S. Rhodesia.
	1905	TAYLOR, C. H.
	1904	TAYLOR, L. E., F.Z.S. ; c/o Conservator of Forests, Dept. of Agriculture, Pretoria, Tvl.
	1907	THEILER, Dr. A., C.M.G., Govt. Vet. Bacteriologist ; Box 585, Pretoria, Tvl.
	1906	THOMSEN, F., c/o Govt. Entomologist, Dept. of Agriculture ; Pretoria, Tvl.
105	1908	TYRRELL, E. G. HARCOURT ; Greytown, Natal.
	1906	VAUGHAN-KIRBY, F., F.Z.S. ; address uncertain.
	"	WALKER, Dr. P. ; M.O. Health, Transvaal, Pretoria, Tvl.
	1905	WIGLESWORTH, Dr. J., M.B.O.U. ; Rainhill, Liverpool, England.
	1906	WOOD, A. R., A.R.M. ; Wepener, O.R.C.
110	1904	WOOD, JOHN ; Box 363, East London, C.C.
111	1905	WORKMAN, W. H., M.B.O.U. ; Lismore, Belfast, Ireland.

No.	Year of Election.	Name and Address.
<i>Hon. Members.</i>		
1	1908	BUCKNILL, The Hon. J. A., M.A., F.Z.S.; The King's Advocate, Nicosia, Cyprus.
2	1907	HARTERT, Dr. E.; Director Tring Museum, Tring, Herts, England.
3	1904	REICHENOW, Dr. A.; Kaisl. Zool. Museum, Invalidenstrasse, Berlin, Germany.
4	„	SCLATER, P. L., D.Sc., F.R.S.; Odiham Priory, Winchfield, Hants, England.
5	1907	SCLATER, W. L., M.A., F.Z.S.; 1511 Wood Avenue, Colorado Springs, Colorado, U.S.A.
6	1904	SHARPE, Dr. R. BOWDLER; Nat. Hist. Museum, South Kensington, London.
7	„	SHELLEY, Capt. G. E., F.Z.S.; 39 Egerton Gardens, London.
8	„	TRIMEN, R., F.R.S.; c/o Entomological Society, London, W.

LIST OF PAPERS
IN THIS VOLUME.

VOL. IV., No. 1, *April* 1908.

	Page
I. Some Remarks on the Protective Resemblance of South African Birds. By ALWIN HAAGNER. (Plates I. & II.)	1
II. The Nesting and other Habits of the Cape Wigeon (<i>Nettion capense</i>). By Lieut. H. A. P. LITTLEDALE. (Plate III.)	16
III. Notes on some Game Birds of South Africa. By D. F. GILFILLAN	19
IV. On the South African Species of <i>Centropus</i> . By Dr. Dr. J. W. B. GUNNING and A. HAAGNER	36
V. On the Nidification of the Striped Kingfisher (<i>Halcyon chelicuti</i>). By ALFRED D. MILLAR	37
VI. Notes on Practical Collecting	58

VOL. IV., No. 2, *October* 1908.

VII. Migration Report for 1906 and 1907.....	61
VIII. A Description of some Portion of the Oological Collection of S. A. Birds' Eggs in the Transvaal Museum. By JOHN A. BUCKNILL, M.A.	69

	Page
IX. Some Notes on the Wildfowl and Water-Birds of Matabele, East Griqualand. By C. G. DAVIES	102
X <i>a.</i> On the Nesting of <i>Podica petersi</i> (Peters' Finfoot) in Southern Rhodesia. By E. C. CHUBB. (Plate V.).	107
<i>b.</i> On Birds collected and observed at the Khami River, Matabeleland. By E. C. CHUBB	108
<i>c.</i> On Birds collected in Northern Matabeleland. By E. C. CHUBB	112

SUBJECT-MATTER INDEX,
INCLUDING NAMES OF CONTRIBUTORS.

	Page
'Avicultural Magazine,' noticed	50, 51
Bates, G. L. "Notes on the Ornithology of the Cameroons" ('The Ibis'), noticed	47
Bird Extermination and Ladies' Hats	41
Blasius, Dr. R. Obituary	54
'British Birds,' noticed	49, 53
Bucknill, John A. Description of portion of Oological Collection in Transvaal Museum	69
——. Letter from Cyprus	122
Butler, A. L. "Notes on the Red-tailed Bush Lark (<i>Mirafra erythropygia</i>)" ('The Ibis'), noticed	49
<i>Centropus</i> , Notes on the South African species of	36
Chubb, E. C. Nesting of <i>Podica petersi</i> in Rhodesia	107
——. Birds collected and observed at Khami River.....	108
——. Birds collected in Northern Matabeleland	112
Collecting, Hints on practical	58
Colouring-matter in the Remiges of <i>Turacus corythaix</i>	129
Cyprus, Letter from (Bucknill)	122
Davies, C. G. Some notes on the Wildfowl and Water-Birds of Matatiele, Griqualand East.....	102
D'Evelyn, Dr. Letter <i>re</i> introduction of English Sparrow	131
Draper, E. H. M. A note <i>re</i> some properties of the colouring- matter in the Remiges of <i>Turacus corythaix</i>	129
Duerden, J. E. The Egyptian Vulture	40
Egyptian Vulture, a note on the	40
'Emu': Journal of Australasian O.U., noticed	51
English Sparrow question, the	131
Extermination of Birds and Ladies' Hats.....	41
Fitzsimons, F. W. Longevity of Yellow-bellied Seed-eater.....	128
——. Notes from Port Elizabeth.....	40

	Page
Game Birds, Notes on some South African	19
Gilfillan, D. F. Notes on some South African Game Birds	19
Godman, F. DuCane. 'Monograph of the Petrels,' noticed	53
Gough, Dr. L. H. Migration Report	69
Grant, W. R. Ogilvie-. Birds procured by the McMillan Expedition to the Sobat and Baro Rivers ('Ibis'), noticed	52
Gunning, Dr. J. W. B., and Haagner, Alwin. Notes on the South African Species of <i>Centropus</i>	36
Gunning, Dr. J. W. B. Migration Report	69
Gurney, J. H. Breeding of Jackal Buzzard ('Avicultural Magazine'), noticed	50
Haagner, A. Some Remarks on the Protective Resemblance of South African Birds	1
——. Further Notes on <i>Cinnyris daviesi</i>	45
——. Migration Report... ..	69
——, and Dr. Gunning. (See Gunning.)	36
Herman, Dr. Otto. "A Light from the South" (Migration Report)	62
Horsbrugh, Capt. B. R. "Note on the Blue Korhaan" ('Avicultural Magazine'), noticed	50
——. "The Double-banded Courser" ('Avic. Mag. '), noticed ..	51
'Ibis': A Quarterly Journal of Ornithology, noticed	46, 52
Ingram, Collingwood. "On Tongue-marks in Young Birds" ('Ibis'), noticed	52
Jourdain, F. C. R. Letter to Haagner <i>re</i> Bird-eggs	42
Khami River, Matabeleland, Birds collected at	108
Kingfisher, Striped, Note on the Nidification of	37
Littledale, Lieut. H. A. P. Nesting and other Habits of the Cape Wigeon (<i>Anas capensis</i>)	16
——. Breeding of Waterfowl	44
Longevity of Yellow-bellied Seed-eater	128
Lourie, Colouring-matter in wing-feathers of	129
'Manchester Memoirs,' noticed	48
Marshall-Hole, H. "Some interesting Birds of the Zambesi Valley" (Proceedings of Rhod. Scientific Assoc.), noticed... ..	49
Matatiele, Wildfowl and Water-Birds of	102
Mattingley, A. H. Note on the destruction of Herons ('Emu'), noticed	51

	Page
Migration Report for 1906 and 1907	61
Millar, Alfred D. Notes on the Nidification of the Stripe-breasted Kingfisher	37
'Monograph of the Petrels,' noticed	53
Neave, S. A. "On a Collection of Birds from North-east Rhodesia" ('Manchester Memoirs'), noticed	48
Nesting and other Habits of the Cape Wigeon	16
Newman, T. H. Breeding of Red-eyed Turtle Dove ('Avi- cultural Magazine'), noticed	51
Nidification of the Stripe-breasted Kingfisher	37
Obituary: Dr. R. Blasius and Howard Saunders	54
Occasional Notes	40, 122
Oological Collection of Transvaal Museum, Description of portion of	69
Oological Notes (W. A. Payn)	44
Payn, W. A. Oological Notes, with dates	44
Percival, A. B., F.Z.S. Notes on Waders observed on the Coast of B. East Africa	131
'Petrels, A Monograph of,' noticed	53
Port Elizabeth, Notes from	40
Protective Resemblance of S.A. Birds	1
Pycraft, W. P. "On the Anatomy and Systematic Position of the Colies" ('Ibis'), noticed	47
— "On the Tail-feathers of the Grebes" ('Ibis'), noticed ..	48
— "Nestling Birds" ('British Birds'), noticed	49
Report of Committee for Migration for the Years 1906-7	61
Rhodesia Scientific Assoc., Proceedings of, noticed	49
Salvadori. "Notes on the Parrots" ('Ibis'), noticed	46, 47
Saunders, Howard. Obituary	51
Sharpe, Dr. R. Bowdler. "A Contribution to the Ornithology of the Cameroons" ('Ibis'), noticed	47
Short Notices of Ornithological Publications	46, 133
Swynnerton, C. F. M. "On a collection of Birds from Gazaland, Southern Rhodesia" ('Ibis'), noticed	46
Taylor, C. H. Depredatory Habits of Vultures	128
Thomsen, P. Migratory Report	69

	Page
Transvaal Museum, Description of portion of Oological Collection of	69
Waders of the Coast of British East Africa.....	131
Waterfowl, Breeding-season of	44
Wildfowl and Water-Birds of Matatiele	102
Workman, W. H. "Suggestions as to the Functions of the Entotympanic Muscle in the Common Snipe" ('Ibis'), noticed	52

LIST OF PLATES.

		<i>To face page</i>
PLATE I.	South African Nightjar on its Eggs. (From a photo by R. H. IVY.)	8
„ II.	Fig. 1. Young South African Nightjar. (From a photo by R. H. IVY.)	9
	Fig. 2. Three-collared Plover and Egg. (From a photo by R. H. IVY.)	9
„ III.	Nest of Cape Wigeon. (From a photo by H. LITTLEDALE.)	19
„ IV.	Pondo Olive Sunbird (<i>Cinnyris olivaceus daviesi</i>). (From a drawing by C. G. DAVIES.)	45
„ V.	Nest and Eggs of Peters' Finfoot (<i>Podica petersi</i>). (From a photo by E. C. CHUBB.)	107

THE JOURNAL
OF THE
SOUTH AFRICAN ORNITHOLOGISTS' UNION.

Vol. IV.

APRIL 1908.

No. 1.

I.—*Some Remarks on the Protective Resemblance of South African Birds.* By ALWIN HAAGNER, F.Z.S., M.B.O.U.

(Plates I. & II.)

IN this article it is my intention to give a short general sketch of this subject, dealing chiefly with those families with which I have had some field experience, supplemented by a few of the more striking instances in detail.

It is greatly to be regretted that hitherto local ornithologists have paid so little attention to this interesting branch of research, and it is sincerely hoped that the contents of this paper may stimulate their activity towards further observations.

Order P A S S E R E S.

Family P L O C E I D Æ.

At first sight one would be inclined to think that there was very little protective resemblance in this family, containing, as it does, some of the most gorgeously plumaged of South African birds; but this is, perhaps, the most interesting part of it. It is a very noteworthy fact that with the majority of the smaller and defenceless species the female is almost always a most inconspicuous object, with

a sombre-coloured feathering, and generally manages to pass unobserved amongst its surroundings. On the other hand, the males are often very gaudily attired, which is true of a large number of the *Ploceidæ*. This is the case with the Bishop Birds (*Pyromelana*), the males of which may be numbered amongst South Africa's most beautiful birds, while the females are little brown-coloured objects, whose coloration, blending, as it does, with the grass and reeds of their favourite haunts, renders them almost invisible to the casual eye. The same remarks apply to the Widow Birds (*Viduinæ*). Can anyone imagine anything more conspicuous than the Long-tailed Widow Bird (*Coliopasser procne*), or even the smaller Red-collared species (*C. ardens*)? Yet their spouses are the very opposite, resembling the females of the *Pyromelana* in their sombre dress, which is of very material assistance to them amongst the long grass of the veld, and especially so in the nesting-season. During the winter months, when the cock birds have doffed their showy attire, they have the same advantage as the females of an inconspicuous plumage. This is also the case with regard to the Pin-tailed Widow (*Vidua principalis*) and the remainder of the species of *Vidua*; also the Red-billed Weaver (*Quelea quelea*).

One of the reasons for the gaudy attire of the males—or rather lack of protective colouring—may be the more or less polygamous habits these birds are accredited with. An interesting case is that of the little Scaly-feathered Weaver (*Sporopipes squamifrons*), which is a denizen of bushy country, where its light brown plumage lends itself admirably towards the concealment of the bird; even during the winter months, when the camel-thorns and mimosas (*Acacia giraffe* and *A. horrida*) are devoid of leaves, their inconspicuous dress is of enormous value in aiding them to find a hiding-place. The second subfamily—the *Estrildinæ*—is a large one, containing those well-known little birds called Rooibekies (from the colour of their bills) and Tinktinkies (from their call). Two of the commoner species of *Estrelida*, the Red-breasted and Black-faced Waxbills (*E. astrilda* and *E. erythronota*),

may be said to possess protective resemblance in a fairly well-developed degree. Although they have conspicuous colours relieving the brown tint of their plumage, they are nevertheless very inconspicuous when feeding on the ground amongst the short grass on the partly bare patches of old lands and alongside roads (their favourite haunts), as the brighter portions of their plumage are then hidden. Their upper surface, which is of a very assimilative colour, blends with the bird's surroundings to such an extent that to walk amongst a flock of them, and suddenly flush them from almost under one's feet, is a common occurrence.

To a certain extent these remarks also apply to the Orange-breasted species (*E. clarkei*), affecting the banks of spruits, &c., and grassy slopes of damp localities; they are most inconspicuous little birds, notwithstanding the bright colours which relieve the olive-brown of their upper parts. Perhaps the best endowed member of the subfamily, so far as assimilative coloration is concerned, is the little Bar-breasted Weaver Finch (*Ortygospiza polyzona*), which has only a white chin and a black throat to relieve the buff and brown tints of its feathering.

Family FRINGILLIDÆ.

Before I pass on to the next family I would like to briefly refer to the Cape and Rock Buntings. The former (*Fringillaria capensis*), a tame and pleasing little bird, was fairly common around Aliwal North, C.C., in 1894. Its brown coloration struck me as being of immense protective value, as the bird is not easily discernible when sitting against a rock or when creeping amongst the crannies between the stones. I also noticed this fact with respect to the Rock Bunting (*Fringillaria tahapisi*). Once, at Irene on the 18th April, I shot one and it fell amongst some loose stones; it took me fully a minute to find the bird, such was its protective colouring, although the body was not actually hidden.

Family ALAUDIDÆ.

I have unfortunately given but little attention to this interesting group of birds, so cannot do better than quote the remarks of Mr. Guy A. K. Marshall, F.Z.S., of Salisbury, Mashonaland, with reference to a member of the Lark family. In an article in the 'Zoologist' (vol. 1900, p. 543), entitled "Conscious Protective Resemblance," he says:—"There are few birds in this country which show a stronger apparent reliance on their protective colouring than the little Rufous-capped Lark (*Tephrocorys cinerea*) or the Cape Long-claw (*Macronyx capensis*). They will readily permit one to approach within a few yards of them and they will merely run on ahead in their curious crouching rat-like manner. This action is certainly of considerable protective value in their ordinary surroundings." I concur fully with these remarks, as this bird is very common at Modderfontein, and I have often noticed that its plumage is decidedly assimilative in its colouring. To this bird I can add, from personal experience, the following species:—Rufous-naped Lark (*Mirafra africana*), Grey-collared Lark (*Alæmon semitorquata*), and the Rufous Long-billed Lark (*Certhilauda rufula*), as Mr. Marshall's observations in a measure also apply to these birds.

Family MOTACILLIDÆ.

Perhaps one of the most conspicuous cases of protective resemblance in this family is that of the Cape Long-claw, already referred to. This bird has a bright orange-red throat, but when it is in the crouching attitude so aptly described by Mr. Marshall, this brightly-tinted portion is invisible.

The remarks on the *Alaudidæ* may serve for most of the Pipits, if not all, so I need not go into a reiteration. I will only draw attention to the commonest local member of this family, the Tawny Pipit (*Anthus rufulus*). This bird's coloration is strongly assimilative with regard to the surrounding sea of grass of its natural home. Its movements

also closely resemble those of *T. cinerea*, already referred to, so that when it is crouching down, even amongst the more stubbly portions of the veld, it becomes all but invisible. This applies to *A. pyrrhonotus* and several other species as well.

FAMILY NECTARINIDÆ.

The Sunbirds, or Zuiker-bekkie (lit. Sugar-bills) as they are called by the Boers, may be ranked amongst the most brilliantly plumaged members of the local avifauna, yet their gay colours are often of a decidedly protective nature. They spend such a large portion of their existence feeding on various flowers that their coloration lends itself to assimilation. Mrs M. E. Barber, a most observant naturalist, drew attention to this fact as far back as 1878, when she published a paper in part 2, vol. i. of the 'Transactions of the South African Philosophical Society,' titled "Peculiar Colours of Animals in Relation to Habits of Life." She noted how the colours of certain South African Sunbirds accorded with those of the flowers of the Aloes and Erythrina trees on which they feed. She says:—"The most unguarded moments of the lives of these birds are those that are spent amongst the flowers; it is then they are less wary than at any other time. . . . Even the keen eye of the Hawk will fail to detect them, so closely do they resemble the flowers they frequent." She particularly draws attention to *Cinnyris afer* in connection with the latter paragraph. With regard to the Scarlet-chested Sunbird (*Cinnyris gutturalis*), according to the late Dr. Stark these birds feed largely on the scarlet blossoms of the Kaffir-boom (*Erythrina caffra*), hence it naturally follows that their scarlet feathering is conducive towards protective resemblance. The Malachite Sunbird (*Nectarinia famosa*) is of a bright green colour, with yellow pectoral tufts. Yet when sitting amongst the almost equally bright foliage of the mimosa, with its fluffy yellow blossoms (a favourite haunt of theirs), it is not easy to locate, always provided, of course, that the bird does not move. This species, moreover, loses its bright plumage about the same

time as the mimosas shed their leaves, both assuming a general brown tint, the bird thus still retaining its assimilative coloration. The females are of a brown colour at all seasons, which naturally renders them—winter and summer—inconspicuous amongst the branches of trees.

I can also speak from experience regarding the Black Sunbird (*C. amethystinus*), having had the good fortune to watch many, both in the gardens of Johannesburg, and amongst its natural scrub on Modderfontein. I can do no better than quote Dr. Stark's words :—" . . . so closely does the nearly black plumage of *C. amethystinus* assimilate in colour with the dark naked branches of the tree, that as long as the bird is still it is not easily distinguished on its perch." This I can fully substantiate. One instance, that of a young male in the "Brown," is perhaps worth quoting. In my Journal, under date September 3rd, 1899, I find :—" While strolling through an orchard I heard the plaintive 'peep' of a Sunbird, so I halted and crept under the tree from whence the sound emanated. I searched the branches carefully, and finally traced the call to a certain twig. I then climbed the tree cautiously, but look as I would I could not locate the bird amongst the twigs and blossoms, although as soon as I remained quiet it continued uttering its cry. I was beginning to lose patience when the bird moved, changing its position, and only *then* I saw it, wondering at the same time why I had not done so sooner." Mrs. Barber also relates the following of this species :—" The Black Sunbird is never absent from that magnificent forest tree the 'Kaffir-boom' (*Erythrina caffra*) ; all day long the cheerful notes of these birds may be heard amongst its spreading branches, yet the general aspect of the tree, which consists of a large mass of scarlet and purplish-black blossom without a single green leaf, blends and harmonizes with the colours of the Black Sunbird to such an extent that half a dozen of them may be feeding amongst its blossoms without being conspicuous or even visible."

Family ZOSTEROPIDÆ.

I will only make a passing reference to this family, as all the members are doubtless of protective coloration. I have often noticed how the green plumage of *Zosterops virens* and *Z. capensis* assimilate to the foliage of the trees which they frequent.

Family LANIIDÆ.

One would hardly think that the members of this pugnacious family required protective resemblance, but I noticed a case with regard to the ordinary Fiskal Shrike which leads one to an interesting phase of the subject. The male is a fairly conspicuous bird in its dress of black and white, the female, with her duller feathering, not nearly so much, and the fully-fledged young still less so; as a matter of fact, the last named possess a plumage of a most protective nature, as the following will show:—On 29th December, 1904, while collecting on the Jokeskei River, Dist. Pretoria, I first noticed this fact; I found three fully-fledged young Shrikes hopping about a tree. As I neared them they suddenly stiffened themselves and sat motionless. When I kept still they soon recommenced their excursions amongst the branches, but I had only to shout or shake a branch of the tree when they would suddenly assume the stiffened posture alluded to. They seemed (unconsciously, I presume) to rely on the perfect harmony existing between the tints of their ashy-brown plumage and that of the tree-bark and twigs of their arboreal abode. They could not fly more than a couple of yards, so that the assimilative nature of their feathering must have been of immense assistance to them. This instance was so striking that I could not help noticing it, and since then, having been on the alert for similar cases, I have verified my experience.

Family SYLVIIDÆ.

The Warblers need only a passing reference, as, owing to their dull coloration and small size, they can all be said to more or less possess protective resemblance, and it would

therefore be idle to attempt to give a list of those species endowed with it. I am well acquainted with the habits of many of the species, and have often noticed how inconspicuous they are when sitting amongst the grass or bushes of their usual haunts. They are, moreover, for the most part of retiring habits.

Order PICARIÆ.

Family CAPRIMULGIDÆ.

The members of this family are on the whole very well endowed with assimilative coloration. I have noticed this fact in regard to the European Nightjar (*Caprimulgus europæus*). Crouching on the ground it is a most inconspicuous object, even on brightly moonlit nights. I first became acquainted with the case of the Rufous-checked Nightjar (*C. rufigena*) on the 27th September, 1898. During a collecting excursion to a farm about 5 miles S.W. of Kaalfontein Station, I happened to be resting under a tree. Staring aimlessly up into the foliage overhead, my gaze was arrested by an irregular bump or protuberance on a bough about 12 feet above my head. I could not make out what it was, so, thinking it might be a nest of some sort, I ascended the tree and was considerably astonished to find a Nightjar fly up from almost under my nose. The bird had been sitting lengthways on the bough, flattened up against it, and the assimilative nature of its plumage was most marked, the mottled grey-brown and rufous feathering harmonizing beautifully with the bark of the tree on which the Nightjar sat. I followed the bird with my eyes as it flew up, and descending to the ground I proceeded to the tree it had taken refuge in, but was forced to study every branch before I located it again. Being mostly nocturnal in habits, a protectively coloured plumage would naturally be of very material assistance to them when in hiding during daylight in some recess or on a bough. Since this occasion I have repeatedly verified this experience, as this bird is fairly common in the Modderfontein district. In the neighbour-



SOUTH AFRICAN NIGHTJAR ON ITS EGGS.

hood of Grahamstown I also noticed this fact with reference to *C. pectoralis*, which seems to be the commonest species of the bush region. My friend Mr. Robert Ivy has also repeatedly noted the remarkable assimilative coloration of this bird, and photographed a female on its eggs on the ground, a reproduction of which is given herewith. The bird is nearly in the centre of the picture. I also show a photograph of a young Nightjar on the ground amongst the forest débris ; the resemblance even here is extraordinary.

Families PICIDÆ and CAPITONIDÆ.

Amongst the Woodpeckers and Barbets—birds all more or less of a coloration which, although often conspicuous enough in the open, lends itself decidedly to the reverse amongst the twigs and branches of its home—I have found the Cardinal Woodpecker (*Dendropicus cardinalis*) when clinging to a tree-trunk to be almost invisible. This is still more marked in regard to the S.A. Wryneck (*Lynx ruficollis*), whose mottled brown and grey plumage so closely assimilates to the colours of the tree-trunks on which the birds feed. This is also true of the Pied Barbet (*Tricholema leucomelas*), but to a less extent, as this bird has more *white* in its plumage.

Family MUSOPHAGIDÆ.

These birds—all more or less of a green tint and denizens of thick forests—are bound to be protectively coloured. Writing of the Knysna Lourie (*Turacus corythax*), Mrs. Barber, that excellent lady-naturalist, says:—"The favourite food of that superbly arrayed bird, the Lory, are the berries of the wild vine. Like the plumage of the Lory, the foliage of this climber varies considerably in its shades of green, and the berries alter in colour as they ripen, from light red to crimson, and ultimately to almost a black colour, while the twining stems of the plant are of a pale grey or white. These colours being the same as the Lory, blend and harmonize with them admirably, rendering the bird protection from her foes. This climber, with its long twining branches, covers large patches

of the forest ; it is seldom without fruit, and forms the favourite haunt of the Lory ; it is there they may be found if you seek diligently, but they are by no means conspicuous, hidden amongst its sheltering leaves." This I can fully substantiate by my own experience of these birds during the month of January 1907.

Order STRIGES.

Families STRIGIDÆ and BUBONIDÆ.

The reasons for an Owl requiring protective coloration are obvious to anyone conversant with the habits of the members of this order, and need not be detailed here. Probably every species of the Striges is more or less endowed with this provision of nature—at least everything seems to point that way. The birds are lighter or darker in coloration as their place of abode may require, even to the extent, as we well know, that those species inhabiting the regions of snow and ice are white or very nearly so. Of South African Owls, all those with which I can claim personal acquaintance are certainly protectively coloured: *Strix capensis*, *Strix flammea*, *Scops capensis*, *Asio capensis*, and *Bubo maculosus*. With reference to the last named, which is a fairly common bird in the district in which I reside, I have had some correspondence with Mr. W. L. Distant, the editor of the 'Zoologist' magazine. He is of the opinion that this species does not possess protective resemblance in the same sense as this term is generally understood, and ascribes to the bird what he calls "active mimicry"; as he says the bird *consciously* conceals itself. Perhaps it does this; the instinct implanted in every dumb creature would lead it to do this: but with all due respect to Mr. Distant's superior knowledge in matters zoological, I must contend that if its coloration was *not* of the protective order, of what use would the conscious concealment of the bird be, *unless it crept into a hole or otherwise completely hid itself*? Therefore why should the mere fact of its conscious concealment be against the theory of "protective resemblance"? I will just relate two

instances in brief detail to illustrate my meaning, and prove my theory. On 30th July, 1898, whilst out shooting, I put up from almost under my feet an Eagle-Owl. It settled a short distance ahead, so I followed it. When I reached the spot I commenced searching for the bird, and after some minutes succeeded in flushing it again, but very nearly treading on it in so doing. This invisibility of the Owl somewhat puzzled me, so I determined I would see it on the ground before firing at it. I followed this bird from place to place for over half an hour before I could see it clearly enough to be sure of its identity, and then even it was more its "ears"—momentarily erected—that betrayed it, as, although it was only sitting amongst the grass-tufts, I could not make out anything like the outline of an Owl, so beautifully did the tints of its mottled grey and brown plumage harmonize with the surrounding grass and stones. It was a clear case of "protective resemblance," as had the bird been of any other colour—red, green, or black, for instance—I must surely have seen it repeatedly from a much greater distance than I was from it when it was flushed. I have noticed this fact repeatedly since, but will only relate one other instance in further defence of my assumption. On the 18th October, 1903, I found a nest (if such the depression in the soil can be termed) of this species on a ledge or platform in a rocky hollow. This ledge was covered with ground on which several of the ordinary veld plants grew. I flushed this bird from her two eggs quite suddenly and was certainly not more than 10 feet distant when it flew up. I returned to the spot later with my camera, but in trying to get it properly focussed on the bird had perforce to drive it up to find its exact locality. I was *above* the Owl's position at the time and would have seen it easily enough but for its assimilative coloration. When the bird settled again I immediately lost sight of it, and *although it was only partially screened by the herbage* I had to use my glasses to be sure of its identity. I took particular notice of this case, remembering Mr. Distant's friendly criticism. That Owls are subject to dimorphism is a well-known fact. Professor

Newton mentions it in his admirable 'Dictionary of Birds.' This dimorphism—not necessarily sexual—obtains in *Bubo maculosus* without a doubt. I have noticed a very fair degree of difference in the tints of the various birds that have come under my observation, and there are, or were several specimens of this Owl in the Pretoria Zoological Gardens which amply illustrate this fact. This, then, is a further proof of my contention that this species DOES possess protective resemblance.

Order C O L U M B Æ.

The Doves and Pigeons afford another group of birds seemingly well endowed with assimilative colouring.

With reference to the Green Wood-Pigeon (*Vinago delalandi*), Capt. Shelley has noticed the advantage this bird derives from its protectively tinted plumage. Writing of this species in the Eastern Cape Colony, Mrs. Barber says:—"The colours of the Green Wood-Pigeon of the Transkeian Country so closely resemble those of the fruit and foliage of the wild fig (*Ficus* sp.), their favourite fruit tree, that a flight of them may be concealed amongst its branches without being seen; on anyone approaching the tree, the birds being fully aware of the protection which their colours afford them, remain perfectly motionless. A shot, however, fired into the tree will send them flying in all directions. The plumage of this Pigeon consists of beautiful shades of green with red beak and legs; these colours blend admirably with those of the wild fig. The tree is an evergreen, and bears fruit all the year round, this continually affording the Green Wood-Pigeon not only food but also protection; because it is the home of these birds."

I have repeatedly noticed how beautifully the slate and drab tints of the majority of our Doves lend themselves to the concealment of the birds. This is so with regard to *Turtur capicola* and *T. senegalensis*, and the fact is more worthy of notice in winter when the mimosas have shed their leaves; the birds are even then most inconspicuous objects

as they sit motionless amongst the naked branches and twigs. Writing of *Haplopetia luvata* (Cinnamon Dove), W. R. Ogilvie-Grant (in the 'Royal Natural History') says it is common in thick bush along the coast of Natal, where its brown colouring renders it difficult to detect as it sits motionless among the dense creepers. This is also applicable to the so-called Bush Dove or Rock Pigeon (*Columba phœnota*). Its coloration is particularly helpful towards the effective concealment of the bird when amongst the rocks &c. of its nesting-haunts.

Order PTEROCLETES.

This is another group where every member may be assumed to possess Nature's gift of protective resemblance. I have seen the Namaqua Sand Grouse (*Pterocles namaqua*) amongst the scrub and sand of its Karoo home and in the stunted grass of the Transvaal "winter" veld, and in both cases the assimilative coloration of the bird was admirable.

It seems to me as if the majority of the game-birds of South Africa are possessed of this type of coloration, and I need therefore not go into detail with regard to the Francolins, which are all more or less of the "veld" tint, and consequently the reverse of conspicuous.

Orders OTIDIDÆ and GALLINÆ.

I have just referred to the general veld tint possessed by most of the members of these orders: I have hunted the various Bustards in the O.R.C. and Transvaal and, even guided by their harsh croak, it is often no easy matter to locate them without a dog. Their coloration is very similar to the surrounding grass of the veld, and unless the males protrude their dark-coloured heads above the grass you will find your horse almost on them before they take wing. The male of *Otis afra* is much more conspicuous than the female, with its dark head and white wing-patches, so that the protective colouring is much more developed in the female,

being particularly helpful to the latter during the nesting-season.

Other observers have also noticed the assimilative nature of the South African Bustards. Writing of *Otis cœrulescens* in the 'Journal of the South African Ornithologists' Union,' Mr. Guy C. Shortridge says:—"When on the ground these birds in spite of their size are very difficult to see even when the very spot they have alighted on has been marked." The Cape Quail (*Coturnix capensis*) is also of this veld colour. I have often been startled by one suddenly whirring up from under my feet, so closely do they sit and so well does their coloration fit in with that of the surrounding herbage.

Order LIMICOLÆ.

The Dikkop (*Ædicnemus capensis*) has the advantage of a wonderfully assimilative colouring. Anyone who has observed this bird in its native haunts must have been struck with the wonderful resemblance existing between the coloration of the Thicket's plumage and that of the grass, stones, and tree-trunks of its most cherished haunts amongst the mimosa scrub. I have hunted this bird often in the O.R.C. and Transvaal and always noticed this fact: it is no easy matter to sight it while it is on the ground. It does not readily rise, nor does it seem to be a very strong flyer, requiring a run before it rises on the wing. It seldom, if ever, goes higher than the tops of the mimosas. Hence the probable reason for the very protective nature of its plumage.

Coming to the *Charadriidæ*, Burchell's Courser (*Cursorius rufus*) is perhaps one of the best examples of protective coloration in this family. I have often observed this in the Maroka District of the O.R.C. between Thaba N'chu and Ladybrand, where they are very common, feeding in flocks on the dried and burnt stretches of veld. When in pairs or small parties they are seldom flushed at once: they run with great rapidity and then suddenly drop down and crouch close to the earth, possibly relying on their assimilative



FIG. 1.—YOUNG SOUTH AFRICAN NIGHTJAR.

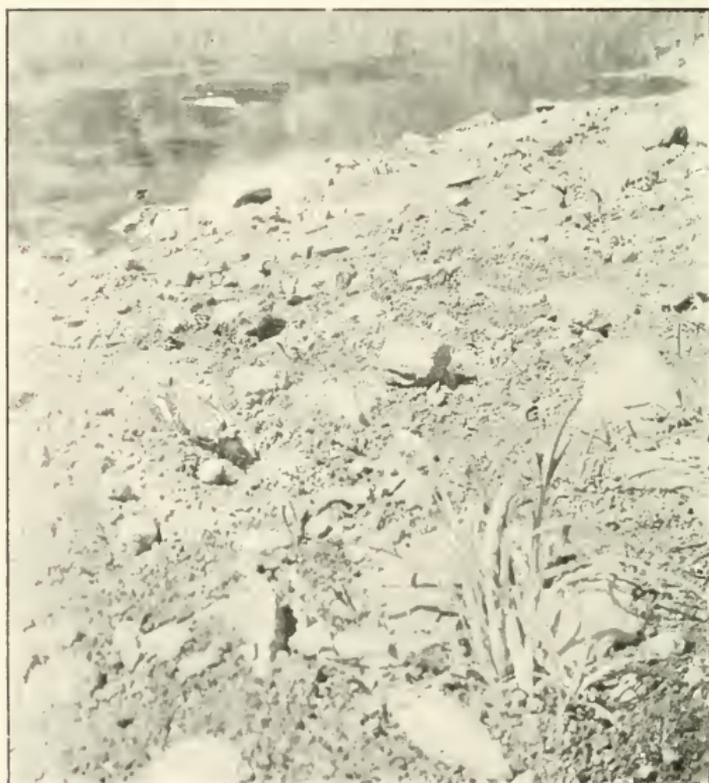


FIG. 2.—THREE-COLLARED PLOVER AND EGG.

coloration, which is very great, for further concealment. These birds make delicious eating, and consequently were often hunted by me. When one is wounded and settles a little way off it requires no small amount of patience and perseverance to locate it as it crouches close to the ground amongst the grass. The foregoing observations hold good for *C. bicinctus*, which bird can be met with in the O.R.C. consorting with *C. rufus*. It is, however, a much scarcer species. The Three-collared Plover (*Charadrius tricollaris*) is also protectively coloured. They are well endowed with this, as Charles Dixon has also noticed ('Curiosities of Bird Life'); but when it is most useful is during the period of nesting, at which time the bird requires this gift of nature, hatching as it does in the open or amongst sparsely growing weeds (see Pl. II.). This applies equally to the Crowned Lapwing (*Stephanibyx coronata*), as indeed, we may safely assume, to most if not all of the species of the family under discussion. One notable exception of course is the Cape Painted Snipe (*Rhynchæa capensis*), the female of which (contrary to the usual course) is a brightly plumaged bird. The reason of this strange case has, as yet, not been ascertained.

I will now close my remarks on protective resemblance with a very brief reference to the nests and eggs of some South African Birds.

The eggs of the majority of birds which lay in the open are protectively coloured, viz. those of the Sandgrouse, which are deposited in a slight hollow in the bare sand; the Plovers &c., which are laid amongst the mud-clots and dried weeds of the water's edge, or amongst the half-dried grass of the veld; the Game-birds (Francolin, Bustard, &c.), which are deposited amongst the grass. All are tinted with shades which certainly harmonize with the eggs' surroundings, a provision of nature most valuable for the continued existence of the birds as species.

Lastly, many nests are also constructed in such a manner that they fit in with their surroundings, as, for instance,

many of the Flycatchers, which build their nests in trees and cover the sides with lichen to conceal its real identity ; or the Warblers, which build in grass-tufts, and construct their nests of various grasses deftly woven and placed to appear as inconspicuous as possible.

II.—*The Nesting and other Habits of the Cape Widgeon* (Nettion capense). By Lieut. H. A. P. LITTLEDALE, 1st King's Own Yorkshire Light Infantry.

(Plate III.)

I HAVE found the Cape Widgeon to be comparatively common at Van Wijks Vlei, near Carnarvon, Cape Colony, and also I have seen a good number on most of the dams in the neighbourhood.

Van Wijks Vlei is probably the largest permanent sheet of water in Cape Colony and certainly the largest in Great Bushmanland. This year the dam is fairly full, but not so full as to cover the islands, of which there are several. The dam was built about 22 years ago and in a couple of years 1700 acres were submerged, which is rather less than its present extent. In circuit it is about 10 miles round. The islands are about 50 to 150 yards in diameter.

I have found three nests of the identity of which I am certain. There are others which contain similar eggs but on which I have not seen the birds actually sitting.

The nests do not vary much. In two cases they were placed under very thin and scanty bushes which did not conceal them from view. The third was very well hidden under a very thick bush. The first two nests were merely round holes in the ground obviously scraped by this or some other bird. The holes were 9 inches in diameter and 3 inches deep. The bottom was almost bare earth, the few feathers and scraps of down that there were below looking as if they had got there accidentally. When the bird is sitting the eggs are encircled with a ring of down about $1\frac{1}{2}$ inches broad, which the bird overlaps and thus keeps the eggs warm. Before leaving the nest the bird pulls the ring of down over

the eggs and makes a thick pad of it, thus leaving the eggs protected from cold and rather difficult to find. If the bird is put up off the nest she will leave the eggs uncovered; but in one instance I saw the bird fly round in a circle and returning hover over the nest as if she wanted to secure them before leaving, although I was within 20 yards in a punt at the time. This idea seemed at first sight a little too "intelligent," but the following will show that the above is quite probable. I had noticed a Widgeon several times flying round a certain island and both myself and my companion were sure there was a nest there. We hunted everywhere, but found only one likely egg and that broken open and quite fresh. Days later I stumbled on the nest containing nine Widgeon's eggs and one old Berg Gans egg (*Chenalopex aegyptiacus*) under a very thick bush. I was watching a nest at the time belonging to some Gull and used to come and have a look at it every now and then. Each time I landed on the island the Widgeon left her nest a few minutes after my arrival and on each occasion the eggs were covered over carefully. Eventually I was watching her on her nest and was within 10 feet of her. She was asleep or dozing and did not mind me at all. I opened my camera to take a photograph of her. This startled her and she left the nest. The eggs were uncovered, the ring of down being all round them. This nest was on the site of an old Goose nest. The eggs were resting on the down and feathers which had evidently been the old Goose nest, hence the old Goose egg which was included in her sitting.

The cock bird does not, I think, take any part in incubation. The hens' breasts are picked quite bare of down, but the contour-feathers are not picked out. The cock birds' breasts show no sign of this. One meets cock birds scattered about on the dam and sometimes one can get near enough to shoot one. I have never found a hen alone. Before I realized they were breeding I shot several birds and I noticed they were in breeding condition and also the hens' breasts were bare of down. These birds are sometimes very shy; at other times, particularly at dusk, they are quite tame. In the evening

they sometimes "flight," but this habit is, at this season at least, of somewhat irregular occurrence, not taking place every night; they also change their feeding-grounds during the day. There are some salt-pans below the dam, and a pair of Widgeon often spend the middle of the day on them. When swimming about their call is a rather high-pitched quack. I have never heard them quack when flying, but they sometimes make a sort of short whistling note. This is evidently the breeding-season for these birds, but they are often to be found in threes and fours. Unfortunately the island on which was the nine egg clutch has been invaded by some local people who now hold periodical picnic parties there. These worthies signalled their arrival by burning down a large patch of what I believe to be Flamingoes' nests. The Widgeon nest was deserted and I have not had an opportunity of seeing the young ones.

The irides of these birds vary from light hazel and yellow to deep orange.

The bill is a deep waxen semitransparent pink, base and edge of upper mandible black, an indistinct streak of turquoise extending from the base about two-thirds of the length of the culmen. This streak gets darker immediately after death, the whole bill becoming dull purple in about an hour.

Clutch of seven eggs, July 6th, 1907. Slightly incubated.

Average measurements of six eggs (one having been broken): length 1.91 inches; breadth 1.34 inches.

Colour pale cream, smooth (not glossy). Shape slightly irregular; the more pointed end is generally attenuated and then rounded abruptly at the end.

Clutch of eight eggs, July 6th, 1907. One was examined and found to be fresh. Remainder 8th July, 1907, very slightly incubated.

Average length 1.97 inches; breadth 1.5 inches.

Colour cream, smooth (not glossy). Shape fairly regular: slightly more pointed at one end than at the other.

Clutch of nine eggs, 8th July, 1907: two eggs examined and found fresh. 14th July: no further additions to the nest:

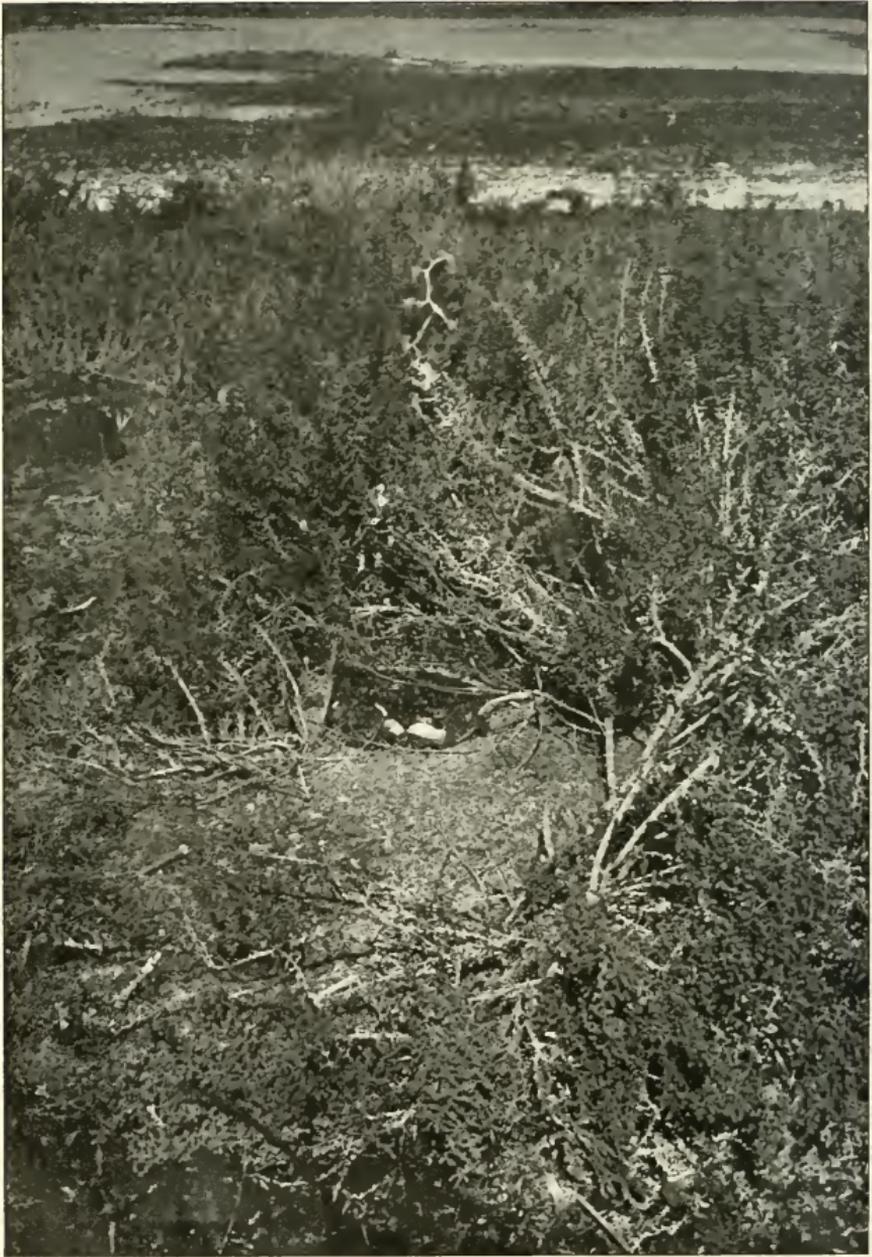


Photo. by H. A. P. Littledale.]

NEST OF CAPE WIGEON (*Anas capensis*).

one egg examined, slightly incubated. 25th July: one egg examined, considerably incubated.

5th August : nest appeared to be deserted.

6th August : nest had certainly not been visited by the bird since the day before ; eggs much incubated, but not ready to hatch by several days. All these five remaining eggs were much stained and even had mud sticking to them ; one showed signs of the bird having pecked at it, and two were slightly cracked. I conclude incubation would take at least 21 days. These are the only dirty eggs I have met with of this species except a few very old ones.

Average length of nine eggs 1·92 inches ; average breadth 1·46 inches.

Colour deep cream, smooth but not glossy. Shape rather variable, but all pointed more at one end than at the other ; in some this is rather more marked.

It will be seen that clutches vary in colour, size, and shape. But eggs of the clutch match each other fairly well.

The above measurements were made carefully, but it was difficult to be accurate without calipers. They may prove slightly inaccurate.

The Widgeon is very good eating, but not to be compared with the Smeë Eendje (Red-bill).

Nest and seven eggs of *Nettion capense*, Cape Widgeon.

This photograph was taken at a distance of 8 feet. The nest was undisturbed by me and only one small bush was removed so as to afford a clear view. Three eggs only are visible, the remaining four being hidden by the near edge of the nest. This photo shows the nest as the bird left it on my approach. The dark ring round the eggs is all down. (Van Wijks Vlei, Carnarvon, Cape Colony.)

III.—*Notes on some Game Birds of South Africa.*

By D. F. GILFILLAN.

I MUST preface my paper on Game Birds by remarking that my knowledge of their appearance and habits is derived

chiefly from my experience as a shooting man, and that I have not made that study of such habits as would entitle me to lay any claim to *knowing* them in the sense that a naturalist would use the word. My experience is not a very extensive one, and I intend saying as little as possible about birds which is not culled from my own experience. For this reason I have headed my paper "Notes on *some* Game Birds of South Africa." I also find that the subject is too extensive a one for a single paper, and I have therefore restricted myself to the Phasianidæ. I do not propose to give a description of each bird full enough to enable a novice to identify a species; to do that would make my paper too long. Reference must be made to one or other of the standard ornithological works for the description necessary to absolutely identify any game bird unknown to the finder thereof, and it is very probable, judging from my own experience, that even then he will not always be able to make certain of the name of the bird.

I start with what I consider the premier sporting birds of South Africa, namely Partridges, which belong to the order Gallinæ, family Phasianidæ, genus *Francolinus*. These birds are not migratory so far as my observation serves to teach me, and are found in every part of South Africa where I have been, or about which I have enquired from others.

When writing of Partridges as the "premier sporting birds" I do not include the so-called Pheasants of South Africa in that description. They are a skulking race of rumers, generally found in thick thorny bush, reeds, and tall grass, in kloofs in the mountains, or on the plains near water, very difficult to flush and ruination to the sportsman's temper and to the training of his dogs.

My experience of Partridges is confined to the following species:—

(a) *Francolinus coqui*, generally known as the "Swempi" from the Zulu name, but corrupted into "Shrimpi" by some.

(b) *Francolinus africanus*, generally known as the "Grey Wing."

(c) *Francolinus levaillanti*, generally known as the "Red Wing."

(d) *Francolinus garipeensis*, known as the "Red Wing."

(e) *Francolinus shelleyi*, also known as the "Red Wing."

In these notes I will follow the order in which I have mentioned these Partridges above.

THE COQUI FRANCOLIN. (*Francolinus coqui*.)

This species is, I think, the handsomest of the Partridges I know. It is considerably smaller than the other three birds I have mentioned, and looks about the size of a Cape Ring Dove, although, owing to its close plumage, its body is actually larger than that of the Dove mentioned.

The male can easily be distinguished from the female by the ochre-yellow colour of the sides of its face and neck all round, while the female has a striped appearance on the under part of its body. The call consists of a long note followed by a short note, which I imitate as near as possible as follows: Twee.....t Twit.

I first saw this Partridge near the Lomati River, Swaziland, in July 1891, when on a shooting-trip to those parts. My companions called it the "Bush Partridge." I have never found it far away from bush or trees of some sort, but it prefers park-like country and small patches of bush rather than dense forest.

Where undisturbed the coveys are generally very large. I have frequently seen from thirteen to twenty in a covey near Barberton. I have also found it in the low country between the Crocodile and Sabi Rivers, near Johannesburg to the north and near Krugersdorp, wherever there were patches of mimosa trees, also near Potchefstroom and Rustenburg, and in Bechuanaland between Mafeking and Vryburg.

It is a fast flying and running bird, and very clever in dodging around trees and bushes in its flight. When in a bush it will invariably take flight from the side opposite the sportsman. After being once flushed it is not easily flushed again. It gives the most difficult shots, in my opinion, of

any of the Partridges. It is extremely local in its habits, and can generally be found at the same spot at any given time of the day, where and when it has been found before. I have never found a sufficient number of coveys to make it worth a sportsman's while to go out to hunt for it alone.

Its food consists of small bulbs, grass-seeds, and insects. I have never found its nest, although I have had it described to me by friends who have found it, and they said that it lays from six to eight eggs in a nest on the ground, of a cup-shape, and very neatly lined with grass, generally underneath a thick patch or tuft of grass. I have never found this bird feeding on cultivated ground, nor have I found it south of the Vaal or Orange Rivers. I have been told by sportsmen in Swaziland that it will occasionally settle in a tree, but I have not seen it do so myself. According to Stark and Selater, it is found from the Transvaal and Natal up to Mombasa on the east coast, and was first recorded and described by Sir Andrew Smith from what is now the Rustenburg District of the Transvaal.

It is a good table bird.

THE GREY WING. (*Francolinus africanus*.)

This is the first species of Partridge I learned to know, and my first lessons in shooting birds on the wing were given on this bird near Steynsberg, in the Cape Colony, when I was of the lesson-hating age.

I have found these birds in the Districts of Queenstown, Cradock, Steynsberg, and Middelburg in the Cape Colony. At one time they were very plentiful on the Stormberg, Queenstown, and also on the Zuurberg, Steynsberg District, it being not uncommon for a single gun to shoot forty brace over dogs in a day. This fact attracted many sportsmen from Johannesburg, who paid big rents for the shooting, and I understand that the birds have much decreased in numbers. The part of the country where I have found them most plentiful is in the grass-veld in the Sneeuwberg Mountains between Cradock and Graaff Reinet. In these parts they were generally found among low shrubs and in the red grass,

but never by me in certain coarse grass growing thicker and longer than the red grass and known as "Koper Draad" (*Anglicè* Copper Wire) by the Boers, which is plentiful there, and which to look at should form an ideal covert for the birds. In July last year I counted over twenty birds in a covey, and I am of opinion that there were thirty at least in that covey; they flew out of sight before I could complete the counting. When found amid the rugged mountainous surroundings where I was shooting them last July they offer very sporting shots, as they are often found close to the edge of a precipice fifty to five hundred feet deep, sheer down into a deep valley. The instant such coveys were flushed they would dive down over the edge, giving very difficult shooting, with perhaps a walk of half a mile or more to recover any birds killed. The view from the mountains, at that time flecked with snow, added to the charm of the excellent sport I enjoyed, while the damp ground gave the dogs every assistance in using their noses, and the snow gave them a cooling roll when hot. In most cases in the mountains birds are either flying upwards or downwards, causing the man accustomed to shoot in the flat country about here to make many disgraceful misses which he cannot account for at first.

These birds are very fond of frequenting cultivated lands to pick up grain, and I have been informed by several farmers, living in the parts where I was shooting, that in the mountains they will scratch out and eat potatoes. Their favourite food, however, is a small bulb forming portion of the root of a species of rush, some varieties of which are found wherever I have been in South Africa. In the Sneeuwberg they also eat the bulbous root of a plant which I have not yet had identified, as I have never found it in flower. I have asked one of my brothers, on whose farm it grows plentifully, to gather and press some plants in flower for me for indentification. These birds will also eat grubs, beetles, locusts, and ants, as will all the Partridges. When locusts are about in the wingless stage these birds become excessively fat, but I have not known their flesh to have a

rank flavour from this food, as is the case with some of the Bustards. I presume that the vegetable diet of these birds corrects the tendency of this food to make the flesh rank. They nest in the spring, from September to December as a rule, but sometimes as late as March and April. The time of nesting very much depends upon the rains.

They are noisy birds, having a clear ringing call, generally to be heard at sunrise and sunset, particularly when there is a change of weather coming. The sound of their note, coupled with the scent of the Karroo bushes, always carries my thoughts back to the happy days when care was almost unknown and holidays, which were frequent, were spent in the country with gun or catapult. There was for many years, and no doubt is still generally to be found, a small covey of birds near the homestead on the farm "Conway," Middelburg District, Cape Colony, which is never allowed to be molested. The members of this covey were frequently to be seen sitting in a row on a stone wall near the homestead, calling most vigorously for an hour or more, and whenever this happened it generally meant either rain or a change in the weather of some sort. I have seen coveys on the same farm call vigorously at dusk and then fly quietly and settle for the night some four or five hundred yards away. My conclusion as to the reason for the action was that it was done to put jackals and other prowling animals off their scent. I have not noticed the practice anywhere else, but my brother, who owns Conway, states that it is not uncommon on his farm. On one occasion also, when I was shooting in the Barberton District in 1891 on a dull quiet day, I saw a covey of birds fly up from an open grassy spot some two hundred yards from where I was riding, and settle in a donga about a mile away from the place they had flown from. I turned my horse in that direction to hunt them up and had just started off when a heavy shower of hail commenced falling. I with my horse had to take shelter in the same donga beneath some thick-foliaged trees, and the hail was so severe that it stripped the leaves off the trees

and both I and my horse were hit by the hail. After the shower was over I continued down the donga and found the Partridges right underneath an overhanging bank of the donga, where they were completely sheltered. I am satisfied that they had in some way become aware of the impending hail-storm and had flown off for shelter, as it is most unusual to see these birds fly in the middle of the day, unless disturbed. The grass was short from where they rose, and I am confident that nothing living frightened them up.

When flushed Grey Wing generally rise with shrill squeaks from all the members of the covey, which is a very distinctive feature of this species, quite sufficient to distinguish it from the other species I know.

The feeding-time of these birds is from sunrise to about 10 A.M., and from 4 P.M. till dusk, during the winter months, and in summer they feed earlier in the morning and later in the afternoon.

The scratchings of this bird can generally be distinguished from those of Larks and other small animals by the mark of the bill at the apex of the scratchings, where it was inserted to lever out the bulb or root that was being searched for.

The chief enemies of the Grey Wing other than man appear to be the numerous Hawks found in the Karroo and the Secretary Birds, but I have no doubt that wild cats, jackals, and red miercats do a fair share in the killing. I have seen a Falcon, the South-African Lanner, stoop at Partridges I have flushed, but without success. When a boy my father used to take me out with him when he went shooting on the Cradock Commonage. My father knew the whereabouts of, I think, every covey of birds on that commonage, of about 25,000 acres, and whenever he saw a Hawk hovering or flying about in the neighbourhood of the part in which birds were likely to be found he would first go to the spot where the Hawk had been seen, and I can recall many occasions when the covey was found there. Also when unable to find a covey in its usual locality he would watch the Hawks and hunt where they were hunting, generally

with success. So far as the Secretary Bird is concerned, I have not only found the remains of Partridges below its nest, but on one occasion in 1899, when out Partridge-shooting on the farm Conway above mentioned, I found some fresh Partridge scratchings. It was a perfectly calm day, and my dogs were unable to hit off the scent to show me in what direction the birds had gone. I hunted about for the spoor, and finally traced it into a cattle-path leading to a high stony ridge half a mile or more away and on to a small plateau on the top. When I had gone some distance along the path I noticed the spoor of a large bird on top of the Partridge spoor right up the ridge. As soon as my head topped the edge of the plateau a Secretary Bird flew up, which I shot. I continued to follow the spoor, and just beyond where the Secretary Bird flew up my dogs stood to the Partridges. I have no doubt that the Secretary Bird was after those Partridges.

Grey Wing, as well as most Partridges, are easily snared owing to their regular habits. They nearly always follow certain paths to the water, and in those parts in the Karroo where I have had an opportunity of watching their habits they appear to drink only once a day, at about 11 A.M. or 12 noon. By enticing them with wheat or kaffir corn they can also be caught with snares. I am informed that last season a considerable number of Grey Wing were brought alive into Cradock by farmers for sale on the market. A good many were bought up to stock some farm belonging to a Johannesburg landowner. Unfortunately the mortality among the birds is heavy. I have found Grey Wing in the Karroo both in the mountains and in the plains, but in the latter only near ridges or hills, never in the absolute flat ground far away from ridges or hills except about cultivated ground.

They are monogamous, but I have no evidence on the subject as to whether they pair for life. The coveys nearly always consist of the two old birds and the season's chickens. When shooting in the Sneeuwberg during the trip in July 1906, which I have mentioned above, an exceptionally large

proportion of cock birds were shot. I came to the conclusion that the cock birds who had either not obtained a partner during the season, or lost their hens and reared no brood, were forced to keep together, having been driven away from the hens by other broodless cocks who had gathered the broodless hens into coveys. The cocks are very pugnacious birds, and an old pair of birds will chase away any young birds who may attempt to nest in their neighbourhood. Unless the old birds are killed off it will never, in my experience, be found that the birds increase, by preventing all shooting. Where one covey alone was found before, there one covey alone will be found each year. When, however, the old birds are shot, and this can easily be done by a good shot somewhat early in the season, as it is then easy to pick out the two biggest birds as they rise, and in addition if only the first birds which rise are shot they will generally be found to be the wary old birds, the young birds will nest and rear coveys closer to one another. If this is regularly done for a few years, and the birds otherwise not disturbed, the stock of Partridges will soon be brought up to the maximum the ground can carry, which depends on the food-supply. Considering the great quantities of the bulbs on which Grey Wing feed in all parts of the Karroo, the saturation point should not be easily reached.

The nests are cup-shaped, somewhat deep, carefully lined with grass, placed under shelter of a bush or tuft of grass, and containing from eight to fifteen eggs. The eggs are slightly larger than those of tame Pigeons and spotted with minute brown spots on a dull-coloured background. The spots vary, and sometimes the eggs are blotched with brown.

THE TRUE RED WING. (*Francolinus levaillanti*.)

I found these birds for the first time on a farm called White Bank, at the head of the Mancazana Valley, District Bedford, Cape Colony, when a boy. I did not, however, succeed in shooting any, but saw some that had been shot, and received the impression that they were much larger than

the Grey Wing. I found these birds again for the second time near Barberton in the Kaap District, and my impression was confirmed as to their size, for although they may not be quite as long as the Grey Wing they are generally a much heavier bird. I have also shot some near East London in the Cape Colony, and near Rhenosterkop in the District of Middelburg, Transvaal.

I have never found big coveys of Red Wing, and do not remember ever having found a covey exceeding eight in number, the general number being from three to five. It is a handsomer bird than the Grey Wing, and, so far as I know, is only found in the grass-veld on the mountains, and also near vleis and valleys in broken country in the grass-veld, and never in the Karroo districts. I have never found the Red Wing in cultivated ground, nor have I seen them in the neighbourhood of Johannesburg.

Apart from the plumage and the measurements, the true Red Wing can be distinguished from the other Red Wings by the fact that the male rarely has a spur which is more than a mere knob, while the male birds of the species mentioned under (*b*), (*d*), and (*e*) have long sharp spurs. In addition the superciliary stripe of mottled black and white feathers extends down on both sides of the neck and joins in the middle of the nape and runs on to the mantle, while in species (*d*) and (*e*) this stripe ends on either side at the base of the neck, not meeting at the back. I know very little of this bird's nesting-habits. It is, in my opinion, an easier bird to shoot than the Grey Wing and is a good table bird. Its food is similar to that of the Grey Wing.

THE ORANGE RIVER FRANCOLIN. (*Francolinus garipeensis*.)

It is called the Red Wing in the Transvaal. I have found this bird in the De Kaap Valley, Barberton, near Witbank in the Middelburg District, Transvaal, around Johannesburg and near Vereeniging on both sides of the Vaal River, and it is, I think, the bird usually found in the plains of the high veld in the Transvaal and Orange River Colony.

Its habits are very similar to those of the true Red Wing

and it resembles the true Red Wing in the size of the coveys. I have very rarely found more than eight in a covey, the usual number being four or five.

Its call differs from that of the Grey Wing and is exactly like the call-note attributed to Büttikofer's Francolin in Stark and Selater's book, sounding like "O, ti pidlip, O, ti pidlip," which is very similar to the call of the Red Wing, while the Grey Wing's call is like "Plip, plip, pleu ; Plip, plip, pleu."

On one occasion in 1890 or 1891 when out shooting alone near Barberton I was riding, towards evening, down a very wide donga when I heard ahead of me a perfect chorus of Partridge calls. I dismounted and then saw about a dozen Partridges, each on a stone or clod or other prominent projection at the side of the donga, with their beaks pointing skywards, calling as if their very lives depended upon the noise they made. They took no notice of me, although I walked right close up to them. I have never again heard such a number of birds calling at the same time and so loudly. It was too dark to shoot any unless I picked them off on the ground, and beyond watching them for a little time I did not disturb them, and as it became darker the concert ended. I expected to see the cocks fighting, but they did not disturb one another. I am unable to say whether there is any difference between the call-note of the male and female, nor do I know for certain that both sexes call. When a covey is scattered by being flushed the call-note will after a little time be heard from various points, judging from which fact I believe that the hens call as well as the males. To try and decide this point I shall have to shoot some birds on the ground when calling, although such an act is like shooting a fox in a fox-hunting county in England.

There is not a very great difference in appearance, according to Stark and Selater's description, between this Partridge and Büttikofer's Francolin (*Francolinus jugularis*) and Shelley's Francolin (*Francolinus shelleyi*), and I doubt whether they can be considered as distinct species, and not mere local variations. I have shot Partridges both at Vereeniging and near Witbank on the same ground and

close together, among which I have found some that agree with the description of Shelley's Francolin and some with the description of the Orange River Francolin. At Witbank birds agreeing with both of these species were shot by me apparently out of one covey, but as I had flushed two coveys some little distance away which had both flown in the same direction, it is possible that two distinct species had become accidentally mixed.

When on a shooting-trip in April, 1906, to some farms near Rhenosterkop, in the Middelburg District, Transvaal, I found that these birds regularly slept in the marshy ground covered with rushes, in the valleys running through mountain plateaux, and on several occasions I saw these birds fly of an evening from the edge of the plateau on which they had remained during the day into the rushes in the valley after sunset, and I have put up coveys in such marshes just before dusk, but have never found them there in the daytime.

My companions on the shoot and the farmers in that neighbourhood assured me that the Partridges came down every night into the rushes to sleep and went up again on to the mountains before sunrise.

When hunting for these birds at that time I regularly found them about sunrise on the edge of the plateau overlooking the valley, and later in the day they would be found somewhat further in from the edge. I also found no Partridge scratchings down in the valley, but only on the plateaux. This must also be a protective habit to throw predatory animals off the scent.

Mention of this trip brings to my mind a method of preserving birds for eating when the weather is hot, which I learnt from one of my companions. This is not strictly a subject for naturalists, but no doubt there are some who, after having satisfied their desire for specimens, may sometimes think of their families, or, if bachelors, of their friends. To such the information may be useful. After opening the bird and removing the entrails and crop, cut through the ribs on either side from the opening made to take out the entrails up close to the junction of the wing and body, wash out all the

inner portion and exposed parts, including the inside of the beak and the eyes, with a mixture of good vinegar and water, half and half ; let the bird dry in the shade and then sprinkle pepper (but no salt) inside and on the feathers to keep off the maggot-flies ; cut a stick of the right length and insert it crosswise between the breast-bone and backbone to keep same well open ; examine each evening for eggs of the maggot-flies and remove any found, always peppering the bird well after. Birds so treated will keep fresh for a fortnight or three weeks in hot weather, but must naturally not be hung in the sun but, as far as possible, in a shady, draughty spot.

SHELLEY'S FRANCOLIN. (*Francolinus shelleyi*.)

I have shot this Partridge at Vereeniging and near Witbank.

Among the birds I have shot I have seen some examples which agree exactly with the description of this Partridge given by Stark and Selater, while others not only show a patch of black and white feathers on the crop, but such feathers are continued right down the breast to between the legs, while intermediate specimens are also found. As I have stated in the notes on the Orange River Francolin, they frequent exactly the same ground as those birds, in the parts where I have shot them, and their habits and food are the same.

The coveys of both species begin to break up into pairs in August and September, and I have found the young from January up to June. They are able (as is the case with all the Partridges I know) to fly when not much bigger than Sparrows, and until full-grown are known to sportsmen as Squeakers.

I am confident that this and the preceding species would increase very much about Johannesburg if it were not for the annual burning of grass just before the nesting-season, followed by the later burning during the breeding-season of such patches which may have been left unburnt at the first burning. The birds can get no shelter from vermin and hail-storms and many nests must be destroyed by the late burning. I have noticed that wherever plantations have been started

in this Colony and in the O.R.C. a few coveys of birds have taken up their abode close to such cover. They clearly recognize the value afforded by the shelter and as soon as they are flushed they fly straight back in among the trees. I intend trying to find out whether they do not also nest on the ground among the trees. They must surely soon learn that they and their young are safe from fires and Hawks in the plantations. As a rule, however, wild cats and jackals also take up their abode in these plantations. On each occasion that I have done any shooting among the big plantations on the farm "Maccoa Vley" near Vereeniging in the Orange River Colony, one or two wild cats have been driven out of the plantations by the beaters and shot; and on the farm "Carlswald" near the Half Way House between Johannesburg and Pretoria, and on another farm close to the latter farm, on two different occasions when driving the plantations a red jackal was driven out and shot.

When shooting early in August on a farm called "Sandfontein," near Vereeniging in the Orange River Colony, I found a very large number of birds in big strong coveys in and about the mealie-fields. A few weeks later the whole of the country about there for miles was completely burnt out and there was hardly shelter left sufficient for a beetle, and this is the regular practice every year. It would be interesting to find out where those birds have gone to, as there is not much unburnt veldt left in that neighbourhood.

I now come to the so-called Pheasants, which are classed among the genera "*Francolinus*" and "*Pternistes*." Of these I have only shot two species, namely (a) *Francolinus capensis*, the Cape Pheasant, and (b) *Pternistes swainsoni*, Swainson's Pheasant. The former I saw for the first time on the farm "Culmstock" in the district of Middelburg, Cape Colony, the property of Mr. Charles Southey. This was, I think, in the early eighties and late seventies of the last century. Mr. Southey brought these birds from somewhere in the neighbourhood of Capetown and endeavoured to acclimatise them on his farm in the Karroo, thinking that

the reeds and scrub along the Great Brak River running through his farm would afford them sufficient shelter. For a time they increased fairly rapidly and went long distances up and down the river on to the land of neighbours. Of late years, however, I am informed that they have been decreasing, which Mr. Southey puts down to the enormous number of wild cats and other vermin in that part of the country, which find Pheasants sleeping on the ground in a limited area an easy prey.

They are very noisy birds, having a harsh penetrating call.

The only place where I have shot a few was in the bush near Barberton. Their food appears to be similar to that of Partridges. They will frequently settle on trees, but, so far as I am aware, they do not sleep in the trees.

The latter species I have shot in the Nylstroom District in 1905 among thick thorny scrub close to a vlei, and in amongst the rushes in the vlei itself. The male is about twice the weight of a Red-wing Partridge and is not only distinguished from a Partridge by its size and different coloration, but by its gaily coloured head and neck, as it has a bare ring or space round the eyes, and on the throat below the beak which is of a bright vermilion; the lower mandible is red and so is the nasal opening of the upper mandible. The female resembles the male, but is duller in coloration and has no spur. The male has a long sharp spur, with often a rudimentary second spur higher up. I have also shot a male bird on the Marezani River, Bechuanaland, in May of this year, which I found among some thorny scrub on the edge of a big vlei in the valley through which the river flows. I saw some more, but it was too late to follow them up. I believe that I have shot the same bird in Swaziland on the Lomati River in 1891; if it was not this bird, then it must have been *Pternistes nudicollis*, which has been reported from Lydenburg in the Transvaal, but, as Selater states, probably in error. Its food appears to be very similar to that of the Partridge, judging from the contents of crops I have examined. I do not know anything of its habits in regard to nesting and roosting, but

Stark and Sclater state that it roosts in trees. Its cry is harsh and can be heard a long way. It is a difficult bird to flush, as it runs almost as fast as a Guinea Fowl and keeps to very thick thorny scrub as a rule. Its flesh is white, but I have found it somewhat dry and indifferent for the table.

This practically exhausts my information as regards Part-ridges and Pheasants, and I will now take the Guinea Fowl, which also belongs to the Phasianidæ, of which there are two genera, *Numida* and *Guttera*, the former being distinguished by a horny growth on the crown of the head and the latter by a crest of feathers.—My own knowledge only extends to one species of the genus *Numida*, namely *Numida coronata*, the Crowned Guinea Fowl. I have seen these birds in every part of the Eastern Province of Cape Colony, and the Transvaal and Swaziland, where I have done any shooting, both domesticated and wild. The domesticated are quarrelsome and bad birds to keep with other poultry, and a source of continuous annoyance to any neighbours not more than half a mile away on account of their penetrating metallic cry, which they can and do keep up ceaselessly for hours. They are good runners and in the open can run away from most men. If they can be headed by a man on horseback or by a dog they will generally squat and lie very close if there is any cover, and can be put up one by one and shot with the greatest ease. I have seen them in immense flocks on the banks of the Komati River in Swaziland, probably at least four or five hundred in one flock. They are, I think, the best eating of the Phasianidæ family. They cannot be considered a very sporting bird owing to their running habits, their fondness for dense bush, and the ease with which they can be shot when flushed after having squatted. A method of shooting them has, however, been put into practice by owners of big plantations near Johannesburg, in which these birds show to much greater advantage from a sporting point of view. They are carefully preserved during the close season and in the open season are driven, as Pheasants are in England, so as to fly over the guns stationed in front of each section of the plantation. If they get on the wing some

distance from the shooters they go along at a very great pace, which would never have been expected judging from their appearance, and give very difficult shooting.

After having been almost completely exterminated in various parts of the Eastern Province these birds have increased very largely again since the invasion of South Africa by locusts. They are very partial to the insects either in the winged or wingless stage and to the eggs. Against a steep ridge running for some miles between the Small Brak River and "Doornberg," in the district of Middelburg, Cape Colony, on my brother's farm "Conway," the prevailing winds from the north blowing over a great extent of Karroo Plains have banked up fine red sand over a considerable area. This sand is a favourite laying place for the locusts, and the Guinea Fowl from Doornberg and from the mimosa scrub on Conway are constantly to be found there after the locusts have deposited their eggs, and they scratch so vigorously that I have seen the dust from the scratchings of a big flock at least a mile away. Their food much resembles that of the Grey-wing Partridge, as they eat the same bulbs and insects, and are great pests in the grain lands in some parts where they happen to be very plentiful. Their scratchings can be distinguished from that of Partridges by being deeper and covering a larger area. Dogs, except Terriers, are not of much use for hunting Guinea Fowl, and they easily ruin Pointers and Setters which have not been thoroughly trained, as it is most disturbing for an excitable young dog to get on to a bird with so strong a scent and then see it running in front of him. The dog is almost certain to chase and will not listen to voice or whistle. A steady old Pointer or Setter, however, will put them up one by one when they have squatted and is then very useful, as without a dog the birds will allow themselves to be almost trodden upon without moving.

They nest in thick bush or scrub, and I have found nests hidden among the exposed roots of a gum-tree. Their nests are very like that of a common fowl and are very carefully hidden. The eggs, generally twelve to eighteen in number,

are somewhat smaller than a fowl's egg and have a very hard shell, dull white in colour. The nesting period is during spring. I have seen a hybrid with the common fowl, which was black with purplish lobes, feathers about the leg very fluffy ; these are said to be hardy and good layers.

IV.—On the South African Species of *Centropus*.

By Dr. J. W. B. GUNNING and ALWIN HAAGNER.

Dr. REICHENOW, in his standard work on the 'Birds of Africa,' mentions that he has no satisfactory proof for the inclusion of South Africa in the habitat of *Centropus superciliosus* or *C. senegalensis*.

After a careful study of the series of skins in the Transvaal Museum, which is fortunately fairly large, we have come to the conclusion that besides *C. flecki* (recorded from Nocana on the Okavango near Lake Ngami by Dr. E. Fleck) we must include the two, considered as doubtful by Reichenow, in the Avifauna of South Africa. These are : *Centropus senegalensis* and *Centropus superciliosus*.

Owing to some confusion in the correct identification of the species, Mr. W. L. Selater was at a loss to know how to allocate the records of the geographical distribution to the two closely allied species *C. burchelli* and *C. superciliosus*, although he includes the latter, as well as *C. senegalensis*, in the South African list. The last has been recorded from Bechuanaland by Buckley.

The following lists of specimens in the Museum, with collector, locality, and date, will throw considerable light on subject.

1. CENTROPUS SENEGALENSIS. (Senegal Coucal.)

Head dark brown, glossed ; rump and upper tail-coverts plain, *not* barred.

a. ♂. Matabeleland, Wilde, September.

b. ♀. Zambesi, Wilde, September.

2. CENTROPUS BURCHELLI. (South African Coucal.)

Head deep blue-black with steely reflections ; little or no

shaft-streaks on the sides of neck, these when present never extending on to the nape ; rump and upper tail-coverts cross-barred ; no pronounced eyebrow.

- a. Pretoria, Austin, October.
- b. Transvaal, ? ?
- c. " ? ?
- d. Matlabas, Krantz, December.
- e. Knysna, Marais, October.
- f. " " "
- g. " " September.
- h. " " March (juv.).
- i. Grahamstown, Ivy, February.
- j. Pietermaritzburg, ? ?

3. *CENTROPUS SUPERCILIOSUS.* (White-browed Coucal.)

Head brown, without gloss ; a distinct buffish eyebrow ; sides of neck profusely and distinctly shaft-streaked, extending up the whole side of the neck often on to the nape ; rump and upper tail-coverts barred as in *burchelli*.

- a. Transvaal (no locality).
- b. Salt River, Knysna, Marais, August.
- c. Rhodesia, Marais, September.
- d. Modderfontein, Haagner, September 1899.
- e. Grahamstown, Ivy, December.
- f. Pretoria, Luckhoff, July.
- g. Knysna, Marais, March.

V.—*On the Nidification of the Striped Kingfisher (Halcyon chelicuti).* By ALFRED D. MILLAR, Col.M.B.O.U.

THIS bird appears to have escaped the notice of most naturalists, partly no doubt owing to its scarcity, and perhaps owing to its solitary and retiring habits, although it is nevertheless of interest.

It also appears that the only account of its nidification has been given by Böhm, who found a nest in German East Africa.

These birds are found here north of the Tugela and in

Zululand, and I have likewise observed them inland from Beira, but never more than a pair in the same locality, and frequently they are found solitary.

Their call, which can hardly be termed a song, is decidedly melodious, and when the birds meet they have a peculiar mode of greeting each other by alternately extending and uplifting their wings with a lusty call resembling "here we are!" "here we are!" several times repeated.

Their diet is found principally in grasshoppers or locusts, and they will remain on a dry twig or bough motionless for half an hour or more watching intently for an opportunity to pounce upon their prey, whilst sometimes I observed them taking it on the wing, and at others picking it off the ground.

As mentioned by Böhm, this Kingfisher has the most unusual and extraordinary habit of nesting in trees, and not only, as Böhm remarks, in the hole of a tree, but I believe more frequently in the deserted nest-hole of a Barbet or Woodpecker, instead of selecting a bank which is the invariable custom of all other members of the family.

On the 23rd October, 1904, when at Tugela I noticed one of these Kingfishers catch a locust on the wing, and after killing it on the branch the bird flew to the hole of a Black-collared Barbet (*Lybius torquatus*) about 15 feet from the ground, and out of this hole several bills of the young birds immediately appeared on call, and ravenously devoured the locust brought by the parent; this procedure I closely observed for a considerable time when both the cock and hen bird were thus feeding their young.

With the hope of procuring the eggs, on the 11th October, 1905, I again visited the locality, but soon found I was too late. One of the birds, and shortly after the other, appeared with food for their young. They had nested again in the same tree—a large wild-fig close to the bank of the River Tugela—in a similar Barbet's hole in a dead bough about 12 feet from the ground; and here again I watched the feeding process. The parent birds were constantly flying in and out of the hole with grasshoppers, the little ones being too young to appear at the entrance, and when remaining perfectly

quiet they were not disturbed at my presence within 15 yards of the nest.

It was not, however, until the 29th Sept., 1907, that I secured the egg. On this date I again visited the locality and finding the cock bird feeding I carefully observed it for over an hour. After devouring a few dainty morsels it picked up a large grasshopper and flew across the river in a direct line to a large fig-tree growing on the opposite bank: here it disappeared from view, and I decided to cross the flooded river in a boat and soon arrived at the fig-tree. Here I noticed several dead boughs, in one of which there was a Barbet's hole about 25 feet from the ground, and after waiting a short time the cock bird appeared and calling for its mate the catch was handed over. This was repeated at intervals whilst I was carefully watching the birds, and the hen flew into the Barbet's hole, remaining inside for some considerable time, after which she appeared at the entrance of the hole with the bill and portion of the head pointing outwards; this led me to think she had eggs. The tree being of enormous dimensions it would have been hopeless to attempt climbing; however with the assistance of a hammer and eight-inch nails I soon found myself alongside the nest, but to my disappointment only found one egg contained therein.

The hole had been excavated about 10 inches down, and although the entrance was small, the nest inside was roomy and sufficiently large to accommodate both birds. It contained old feathers of the Black-collared Barbet and showed signs of the young Barbets having been reared there, but otherwise the nest was bare.

Both birds remained in the vicinity and I decided to shoot and preserve them for identification. On opening the hen bird I found it contained a complete egg with shell in the oviduct, and in addition three smaller eggs; consequently it would have laid five eggs, including the one found in the nest.

The eggs are rounded ovals and more elongate than those of its near ally *H. albiventris* and measure $1 \times \frac{3}{4}$ inch; they are white, and when freshly laid the dark yolk gives a salmon tint.

Durban, Natal,
Oct. 10, 1907.

VI.—Occasional Notes.

I. NOTES FROM PORT ELIZABETH.

1. S. AFRICAN GOSHAWK (*Astur tachiro*).

I have examined many immature specimens of these birds, and have so far found that their tails are at least 2 inches longer than those of adults. Not having seen this fact recorded before, I thought it worth while publishing.

2. BLACK-WINGED STILT (*Himantopus candidus*).

I wish to record the fact that a specimen of a Black-winged Stilt was shot at the end of September near Port Elizabeth. So far I believe few localities in S. Africa have been recorded for this bird.

3. WHITE-BACKED NIGHT-HERON (*Nycticorax leuconotus*).

A fine specimen of this Heron was shot at Hankey, near Port Elizabeth, in August, and will shortly be on exhibition in our museum. This is a very rare bird and has not so far been recorded from these parts, and I should therefore like it put on record.

F. W. FITZSIMONS,

5.10.07.

Director Public Museum, Port Elizabeth.

II. THE EGYPTIAN VULTURE.

[From Grocott's 'Penny Mail,' Sept. 18, 1907.]

Mr. H. D. Gradwell, of Carlisle Bridge, has recently sent to the Museum a specimen of the Egyptian Vulture (*Neophron percnopterus*), with the remark that neither he nor any of the farmers in the neighbourhood had seen the bird before. It is apparently a very rare bird in Albany, for there are no previous records of its occurrence in the district, and the Museum collections contained only this specimen. According to Sclater, it has, however, a very wide distribution, being found throughout Southern Europe, and has been twice killed in England; it extends eastwards through Persia to North-west India. In North Africa it extends from Morocco

to the Red Sea, and thence down the eastern side of Africa as far as Cape Colony, but it is not known from West Africa. In South Africa it appears to be widely distributed, though nowhere very common. In Cape Colony it is recorded from the Malmesbury district, East London (where it frequents the kranzes along the Buffalo River), Colesberg, and Aliwal North.

The following are the principal characters by which the Egyptian Vulture may be known:—The beak is weak, long and slender, and the nostrils elongated and horizontal. The top of the head, sides of the face, and throat are almost bare; the feathers from the back of the head and down the back of the neck are lance-shaped and erect, forming a ruff; the general colour is a dirty white, the winglet and primaries black, the latter ashy along the base of the outer web; the tail-feathers are fourteen in number.

As regards its habits, the Egyptian Vulture is seldom seen in large numbers, except around a carcase. They are even more filthy than other Vultures, feeding largely on excrement, and picking the bones of dead animals abandoned by others. It is stated that in the country around the Orange River they prey on the eggs of Ostriches, which they break by dropping upon them a stone carried up into the air for the purpose. It is well that actual evidence of this should be forthcoming. Mr. Gradwell states that the present specimen killed one of his small Ostrich chicks.

Albany Museum,
17th Sept., 1907.

J. E. D.

III. LADIES' HATS AND BIRD EXTERMINATION.

[From the 'S. A. Poultry Journal,' April 5, 1907.]

According to 'L'Aviculteur,' the wholesale destruction, for purpose of millinery, of certain species of birds threatens at no distant date to bring about the extermination of some of the rarer and more beautiful kinds which the world possesses. How real this danger is may be estimated by the fact that in one market alone were sold lately at one time 12,000 Humming-Birds, 28,000 Parrakeets, 15,000 King-

fishers, 20,000 Aigrettes, and thousands of other gorgeous southern birds of different kinds, as well as Doves and even Sparrows. France receives every year from America, Tonkin, and India millions of birds, which are exchanged for millions of pounds. The number of small birds annually imported into England and France may be computed at 1,500,000. Germany exports yearly twenty million feathers, which are worked up in England into hat-trimmings. In London there are held every month sales of birds' skins and feathers, India alone supplying some thirty millions of feathers. The South American Republics have awakened to the danger of the extermination of their monumental species of birds, and have passed laws regulating their slaughter. A league has been formed in America, the members of which forswear the wearing of feathers; as the demand creates the supply, it is to be hoped more leagues of this kind will be formed elsewhere, and that it will some day be considered bad form for a woman to adorn her head-gear or clothing with the bodies and feathers of wild birds.

IV. The following letter addressed to Haagner may be of interest:—

SIR,—At a meeting of the B.O.C. on Nov. 21, 1906 (at which I was unable to be present), eggs of *Telephonus australis* taken by you were exhibited, and it was stated that Eriks-son was the only collector who had previously taken the eggs of this bird.

It may interest you to know that I have in my collection a clutch of three eggs taken on Sept. 28, 1900, by my brother, Captain H. F. N. Jourdain, 1st Connaught Rangers, about 16 miles east of Pretoria. The nest was built of fine roots and placed in the fork of a tree, low down. The three eggs are white with irregular purplish-brown streaks and scrawls, and more numerous leaden grey underlying streaks and spots. The markings are chiefly at the big end and tend to form a zone.

Size $\left\{ \begin{array}{l} 19.5 \times 16 \text{ mm.} \\ 20.1 \times 16 \text{ ,,} \\ 19.5 \times 16 \text{ ,,} \end{array} \right.$

In a nest of *Sitagra capensis caffra* built among reeds at Pienaars Poort, and taken Nov. 5, 1900, were three eggs of that species and one which I take to be *Chrysococcyx cupreus*. The Weavers are deep blue, unspotted, about 23.3×16.5 mm. in size, while the Cuckoo's egg is very pale greenish blue, sparsely spotted, chiefly at the big end, with fine brownish-violet spots. It is elongated in shape and much smaller than the Weavers, measuring 20.6×14 mm.

I also possess three clutches of eggs of *Thamnolaea cinnamomeiventris*, all taken from Swallows' nests near Pienaars River by Captain H. F. N. Jourdain, in Oct. and Nov. 1900. In spite of a very full description of the plumage of the parent birds, I regret to say that I did not recognize the species till reading Mr. J. A. Bucknill's paper in the 'Journal' of June 1906. Unluckily shooting was strictly prohibited at the time, so that my brother was unable to send me a skin with the eggs.

My eggs are rather narrower than that figured in the 'Journal' (vol. ii. pl. i.). I append measurements of the three clutches :—

(Fresh)	$\left\{ \begin{array}{l} 25.2 \times 18 \text{ mm.} \\ 25.6 \times 18.1 \text{ ,,} \\ 25.4 \times 18 \text{ ,,} \end{array} \right\}$	Nov. 4, 1900. (Nest inside Swallow's nest under ledge of rock.)
(Fresh)	$\left\{ \begin{array}{l} 25.2 \times 18.2 \text{ mm.} \\ 25.1 \times 18.4 \text{ ,,} \\ 26 \times 18.4 \text{ ,,} \end{array} \right\}$	Oct. 19, 1900. (Also under rock-ledge.)
	$\left\{ \begin{array}{l} 23 \times 18 \text{ mm.} \\ 22.5 \times 17.2 \text{ ,,} \end{array} \right\}$	Nov. 22, 1900. (In Swallow's nest under archway of culvert.)

This nest contained 3 eggs fresh (one broken).

The zone as shown in your figure is only apparent in one of my three sets; in the other two the spots are almost evenly distributed, and perhaps rather paler than in your illustration.

Yours very truly,

FRANCIS C. R. JOURDAIN.

Clifton Vicarage,
Ashburne, Derbyshire,
August 8th, 1907.

V. BREEDING-SEASON OF WATERFOWL.

It may interest Members of the Union to know that the following birds are breeding here :—

Egyptian Goose (*C. aegyptiacus*).

Shelduck (*C. cana*).

Cape Wigeon (*Anas capensis*).

Young birds can be seen everywhere, also eggs. Ducklings a few days old in greater numbers.

H. A. P. LITLEDALE,

Lieut. K.O. Yorkshire L.I.

Carmarvon, C. C.,

20th August, 1907.

VI. OOLOGICAL NOTES.

The following dates on which eggs were taken in South Africa may be of interest :—

NAME.	DATE.	PLACE.
<i>Platalea alba</i>	10. 6. 02	Carolina.
<i>Tetrapteryx paradisea</i>	9. 12. 01	Belfast.
<i>Sitagra ocellata</i>	1. 1. 02	"
<i>Fasser arcuatus</i>	20. 12. 01	"
	1. 1. 02	"
	5. 1. 02	"
	4. 2. 02	"
<i>Hirundo cucullata</i>	3. 12. 01	"
	12. 12. 01	"
	31. 12. 01	"
	7. 3. 02	Carolina.
<i>Petrochelidon spilodera</i>	25. 12. 01	Belfast.
	4. 1. 02	"
	5. 1. 02	"
<i>Cotyle cincta</i>	24. 3. 02	Carolina.
<i>Serinus canicollis</i>	20. 12. 01	Belfast.
<i>Turtur capicola</i>	6. 1. 02	"
	7. 3. 02	Carolina.
<i>Coliopasser procne</i>	4. 12. 01	Belfast.
	5. 12. 01	"
	7. 12. 01	"
	18. 12. 01	"
	20. 12. 01	"
<i>Heterocorys brevilinguis</i>	22. 1. 02	"
<i>Tephrocorys cinerea</i>	15. 12. 01	"
	13. 1. 02	"



C. G. Davies, del.

Bate & Dunsanson, Ltd.

THE PONDO OLIVE SUNBIRD (*Pinnyris olivaceus* Davies, Haagn.).

NAME.	DATE.	PLACE.
<i>Sitagra capensis caffra</i>	3. 1. 02	Belfast.
<i>Pyromelana capensis</i>	31. 12. 01	"
	5. 1. 02	"
	12. 1. 02	"
<i>Pyromelana oryx</i>	3. 2. 02	Carolina.
<i>Macronyx capensis</i>	13. 12. 01	Belfast.
	15. 12. 01	"
	25. 12. 01	"
	17. 1. 02	"
	18. 1. 02	"
<i>Policeps capensis</i>	17. 12. 01	"
<i>Gallinula angulata</i>	21. 1. 01	"
	25. 1. 01	"
<i>Hydrochelidon hybrida</i>	7. 12. 01	"
<i>Ibis æthiopica</i>	30. 1. 01	Carolina.
<i>Fulica cristata</i>	24. 2. 02	"

Platalea alba were found in a pan at Strathrae, halfway between Wonderfontein and Carolina. The eggs were quite fresh.

Ibis æthiopica: in a reedy pan on Carolina-Ermelo road, 7 miles south of Carolina. On the date I found the nests most of them contained birds half-grown, or on the point of flying, and the three eggs I got were adled ones, which had fallen into the water. They showed no signs of a bluish tint, but perhaps they had got discoloured from being in the water. The markings were slight in some, but more marked in others.

Hydrochelidon hybrida. A colony of birds on the colliery pan at Belfast. Most of the eggs were a bit set.

W. A. PAYN,

Shropshire L.I.

Bordon Camp, East Liss,
20th March, 1907.

VII. FURTHER NOTES ON *CINNYRIS OLIVACEUS DAVIESI*. By ALWIN HAAGNER.—Since my note in the December 1907 No. of this Journal (4th Annual Meeting), and my description in the Bulletin British Ornithologists' Club, October 1907, Mr. C. G. Davies has kindly sent me six more specimens: three males and three females. Of these, two males (marked

testes undeveloped) have the pectoral tufts of a deep yellow, but without the distinct admixture of orange-red; and two females (marked ovaries hardly discernible) are the same. One adult male and one adult female have the pectoral tufts strongly mixed with bright orange-red, so it would seem that this is the colouring of these parts in the fully *adult* stage. The very dark, slightly iridescent forehead is constant in all, as are the lengthy measurements of the bill and wing. These last specimens are from Lusikisiki, Pondoland—from two localities, high inland ground and the coastal bush-region. This makes a total of ten specimens from Port St. John and Lusikisiki, whereof five males and one female have the characteristic admixture of orange-red in the yellow pectoral tufts, and several more have the edges tinted with orange. I have much pleasure in presenting a reproduction of a water-colour painting by the talented discoverer of the bird.

Of the specimens mentioned above, one is in the Tring Museum, and the remainder (including the type) are in the Transvaal Museum, Pretoria.

VII. *Short Notices of Ornithological Publications.*

I. *The Ibis: a Quarterly Journal of Ornithology.*

The January number contains, amongst excellent papers on the ornithology of various regions, the following, to which the attention of South African students may be drawn:—

1. "On a Collection of Birds from Gazaland, Southern Rhodesia." By C. F. M. Swynnerton.

This was fully reviewed in our last number.

2. "Notes on the Parrots. (Part VII.)" By T. Salvadori.

From the review of the Report of the British Museum, we extract the following:—

162 birds received from British Central Africa, presented by Sir A. Sharpe, K.C.B.

- 45 birds from the Belgian Congo, presented by Colonel J. J. Harrison.
- 417 eggs from British East Africa and Uganda (purchased).
- 232 birds from Benguela (purchased).
- 450 birds from Somaliland (purchased).
- 326 birds from Cameroons (purchased).

Amongst the contents of the April number appears (1) the second and concluding part of Mr. Swynnerton's paper on the Birds of Southern Rhodesia. Like the first part it contains much interesting information upon the habits of our birds.

2. "On the Anatomy and Systematic Position of the Colies."
By W. P. Pycraft.

This is a very valuable, carefully worked-out treatise, and deals with the pterylography, myology, osteology, and systematic position of the Mouse-birds (Coliidae). Mr. Pycraft finds that, all points considered, their nearest allies are the Swifts (Cypselidae). In their pterylographical characters they resemble one another most markedly.

3. "Notes on the Parrots. (Part VIII.)." By T. Salvadori.

This is the concluding chapter, and gives a list of the Parrots additional to those described or recognized in the 'Catalogue of Birds.'

This number also contains an appreciative review of No. 2, Vol. II. of our Journal.

The July number contains:—

1. A lengthy contribution to the Ornithology of the Cameroons. By R. Bowdler Sharpe. With Notes by the Collector, G. L. Bates.

This paper is illustrated by one of Keuleman's beautiful chromo-lithographic plates depicting *Diaphorophytia chlorophrys*, Alexander, and *D. ansorgei*, Hartert.

2. "Notes on the Red-tailed Bush-Lark (*Mirafra erythropygia*)." By A. L. Butler, Supt. Game-Preservation, Sudan.

This is a good account of a little-known species, and describes the plumage-variations of the bird.

3. "On the Tail-feathers of the Grebes." By W. P. Pycraft, F.Z.S.

In this paper—another of Mr. Pycraft's valuable additions to the anatomy of the bird-world—the Author shows that, although by most writers described as non-existent, these birds *do* possess a tail, rudimentary no doubt, but "tail-feathers" all the same are definitely present.

From the account of the Annual Meeting of the B. O. U. for 1907 (presided over by Dr. F. Du Cane Godman, F.R.S.), we notice that the Union numbered 402 Ordinary, 2 Extra-Ordinary, 9 Honorary, 5 Colonial, and 20 Foreign Members. 22 Ordinary Members were elected. Mr. C. F. M. Swynerton, of Gungunyana, Melsetter, S. Rhodesia, was elected a "Colonial Member." We offer our hearty congratulations to this gentleman, who is now a member of the S.A.O.U.

It is proposed to hold a "re-union" meeting of the B.O.U. at Magdalene College, Cambridge, in November 1908, in Commemoration of the Jubilee of the Union, the Society having been founded in the same place in November 1858.

II. *Manchester Memoirs*, vol. li. (1907) No. 10, contains a very interesting article by S. A. Neave, M.A., B.Sc., "On a Collection of Birds from North-east Rhodesia." This paper refers to 217 species collected by the author, as naturalist to the Geodetic Survey, during the years 1904 and 1905 in North-east Rhodesia. Amongst the locality records of special interest to us we extract the following:—*Pterocles bicinctus* from Petauke and the banks of the Loangwa; *Rhinoptilus seebohmi* (Loangwa Valley); *Ciconia nigra* (Niamadji River, Loangwa Valley); *Nycticorax leuconotus* (Loangwa Bank); *Erythrocnus rufiventris* (E. bank of

Loangwa); *Delicon urbica*; *Mirafra nigricans* (Loangwa); *Quelea cardinalis* (Petauke). Mr. Neave refers the local form of the Yellow-breasted Bush-Warbler (*Chlorodyta flavidus*) to the specific name of *florisuga* (Reichenow), and thinks Dr. Reichenow's suggestion that *neglecta* may turn out to be also referable to this species as highly probable. Amongst the nests and eggs described is that of *Prionops tala-coma* (Helmet-Shrike), hitherto unknown. Two new species are described and figured in a coloured plate by Keulemans, viz. *Cisticola stoehri* (named after Dr. Stoehr, whose name will be well known to readers of this Journal from his paper, written in conjunction with Mr. W. L. Sclater, on the birds of the same region, published in the December 1906 number) and *Hypochera codringtoni*. We notice that *Hirundo puella* (Lesser Stripe-breasted Swallow) was obtained in the Feira District on the 18th July.

III. *Proceedings of the Rhodesian Scientific Association.*

Part iii. of volume v. contains a readable series of field-notes on "Some interesting Birds of the Zambesi Valley." By H. Marshall-Hole.

IV. 'British Birds,' vol. i. no. 4.

Amongst the papers of purely local interest we may draw attention to an interesting account of the nesting of a pair of Grey Herons (*Ardea cinerea*) on the Dungeness beach by Dr. N. F. Ticehurst. Mr. Pycraft gives us an able paper titled "Nestling Birds, and some of the Problems they present. (Part I.)" This deals principally with the coloration of the nestling and the relation thereof to the bird's environment. He refers to the characteristic striping of the young of many birds, which he considers "most primitive," and found only, so far as British birds are concerned, in the Grebes and Game-birds. This is illustrated by a pretty half-tone photographic plate of the young of the Great Crested Grebe (*Podiceps cristatus*), taken by Miss E. L. Turner. Mr. Pycraft considers that the main reason for this is protective resemblance. Judging by our own birds,

we should certainly feel disposed to agree with him. As an instance we may take the nestlings of the little Three-collared Plover (*Charadrius tricollaris*). In its striped downy coat of reddish, black, and white it matches the mud-clots, sticks, and pebbles of its abode to a remarkable extent. Again, young Francolin and Guinea Fowl bear this striping, which is particularly well developed on the head, and when alarmed crouch down immediately, with the head and neck outstretched, and thus become practically invisible.—There appears also a paper on “Wind and Flight” (Part I.), by F. W. Headley, M.A., &c. (an authority on the subject), illustrated by photographs and diagrams.

V. ‘*The Avicultural Magazine*,’ November 1906 to October 1907. (Eleven numbers.)

The November 1906 number contains an interesting paper by Mr. D. Seth-Smith (the Editor) on “Some Notes on the Quails of the Genus *Coturnix*.” This is illustrated by a lithographic plate, in colours, of the heads of six of the seven known species, including the two African forms *Coturnix capensis* and *C. delagorguei*. The latter bird Mr. Seth-Smith reared without difficulty in his aviary.

In the December number Mr. J. H. Gurney gives an account of the breeding of the Jackal Buzzard in his aviaries in Norfolk. He describes the plumage of the young bird at the age of six months, and the observations of Haagner and Ivy on the plumage at this stage, published in this Journal, appear to coincide with those of Mr. Gurney. Mr. Meade-Waldo gives an account of a visit to Dassen Island, in a paper on the “Birds seen during the 1905–6 Cruise of the ‘Valhalla’” (reference to which has already been made in these pages).

The March 1907 number contains a paper on the Blue Korhaan (*O. caerulescens*) by Capt. B. R. Horsbrugh, A.S.C. There is nothing added to the information given by his brother in his article in the June 1906 number of this Journal. At the Bird Show held in the Crystal Palace, in the Waxbill-Grassfinch Class, a pair of Violet-eared Waxbills took the

first prize. In the true Finches and Bunting Class, the second prize was awarded to a specimen of our Rock Bunting (*Fringillaria tahapis*).

In the May number Mr. E. Teschemaker records the breeding of the Black-throated See!-eater (*Serinus angolensis*) in his aviary, and describes one clutch of eggs as unspotted. He also ranks the quality of the song of this little bird before that of the Cape Canary.

The September number contains an excellent article on the Red-eyed Turtle Dove (herein called the Half-collared Turtle Dove, *Turdus semitorquatus*) by T. H. Newman. He has successfully reared these birds and finds them exceedingly prolific, one pair having laid from June to November five pairs of eggs, from which six young were reared, though not all by the same parents.

The November number contains a lengthy paper on the Family of the Cranes by Rev. H. D. Astley, and includes the South African *Anthropoides paradisea, carunculata*, and *Balearica regulorum*.

VI. 'The Emu: the Journal of the Australasian Ornithologists' Union,' July and October, 1907.

These two numbers contain much readable matter, illustrated by some very excellent photographs, half-tones, notably those of Egrets and Herons by Mr. A. H. Mattingley, the Secretary of the Union. The series showing young Herons and Egrets starving to death, on account of their parents having been shot for their plumes, are truly pitiful, and it behoves the Union to try and remedy this regrettable state of affairs.

VII. 'The Avicultural Magazine,' November and December 1907.

The first mentioned number contains an article on the Double-banded Courser (*Rhinoptilus bicinctus*), illustrated by a coloured lithograph, by Capt. Boyd Horsbrugh, A.S.C. He states therein that both he and his brother found clutches of two eggs on various occasions.

VIII. *The Ibis, a Quarterly Journal of Ornithology.*

The October number contains, *inter alia*, the following papers of general or specific interest to students of African Ornithology :—

1. "On Tongue-marks in Young Birds." By Collingwood Ingram, M.B.O.U.

This is an account, illustrated by woodcuts, of the shading and spotting found on the tongues of many nestling birds. The reason for this peculiar decoration is not very evident, and the author does not agree with Mr. Pycraft's suggestion that it may be a guide to the parents when feeding their young in obscurely lighted places. Mr. Ingram considers that, however much this may hold good where the white marking is concerned, it does not explain the reason of the *black* markings in other birds, which latter are usually possessed by birds which breed in open and fairly light situations.

2. "On the Birds procured by Mr. W. N. McMillan's Expedition to the Sobat and Baro Rivers." By W. R. Ogilvie-Grant.

The history of a large collection made in the Anglo-Egyptian Sudan, which, however, contained few items of special interest. Amongst these, however, is a new species of Waxbill (*Estrilda macmillani*, Ogilvie-Grant). A specimen (♀) of the Natal Nightjar (*Caprimulgus natalensis*) was procured at Baro River on 15th January, 1907, thus extending the known range of this bird a long way to the north.

3. "Suggestions as to the Functions of the Entotympanic Muscle in the Common Snipe." By W. H. Workman, M.B.O.U.

An article descriptive of the muscle which admits of the pliable and soft anterior part of the mandible being raised. Mr. Workman suggests that this partial uplifting of the extremity of the mandible is of use to the bird when probing in the mud for food, as if it opened its bill for its entire

length, mud and dirt would interfere with its swallowing, whereas the tip only being raised would enable the bird to get a grip of its food without this disadvantage.

This number also contains an appreciative review of the June 1907 number of this Journal, in which attention is drawn to the fact that Dr. Selater was the first zoologist to elevate the Honey-guides to family rank (see 'Ibis,' 1870, p. 176).

IX. '*British Birds*,' October to December 1907.

In these three numbers Messrs. Pycraft and Headley continue their interesting papers on "Nestling Birds" and "Wind and Flight" respectively.—The December number contains an "Obituary Notice" of Mr. Howard Saunders, the respected Secretary of the British Ornithologists' Union (who, we regret to say, passed away on the 20th October of last year), by his friend Mr. Abel Chapman. It is illustrated by an excellent photogravure portrait. An Obituary Notice of Mr. Howard Saunders is given below (p. 54).

X. *A Monograph of the Petrels (Order Tubinares)*. By F. DuCane Godman, D.C.L., F.R.S.

Under this title Messrs. Witherby and Co., of 326 High Holborn, London, W.C., are issuing a quarto work by the President of the British Ornithologists' Union. Through the courtesy of the publishers we have been favoured with a copy of the first part, containing 68 pp. text and 20 beautiful plates. Amongst these are life-like representations of the following forms which occur in South Africa:—*Procellaria pelagica*, *Oceanodroma leucorhoa*, *Oceanites oceanicus*, *Garrodia nereis*, *Cymodroma grallaria*, and *C. melanogaster*. The text is clearly printed on rag paper, and contains, besides accurate and concise descriptions in Latin and English, excellent accounts of the habits and distribution.—We can strongly recommend the work to all who can afford to pay the price. To our Members residing on or near the coast it will be of inestimable value. The price is £2 5s. per part, of which there will be five, or £10 10s. for the entire work, payable in advance.

VIII.—*Obituary.* Dr. RUDOLF BLASIUS and
Mr. HOWARD SAUNDERS.

Dr. RUDOLF BLASIUS, the President of the German Ornithological Society, we regret to say, died on the 24th September, 1907, from pleurisy. A medical Doctor by profession, he was beloved by all who came into contact with him, and many sorrowing friends paid their last respects to the departed gentleman, whose jovial and friendly personality will be sadly missed in Berlin. He was born on the 25th November, 1842, in Brunswick, and was the son of Dr. Heinrich Blasius, Professor of Natural History in the then "Collegium Carolinum," and Director of the Ducal Museum. He was appointed Military M.O. early in 1870 and in July joined the Field Hospital of the 10th Army Corps. He travelled much, visiting, at various periods of his life, England, Italy, Sicily, Austria, Copenhagen, Bohemia, &c., and in 1881, when on a visit to London, he made the acquaintance of Dresser, Salvin, Sharpe, &c. He also visited Selater, Forbes, and Seebohm. He was a personal friend of Alfred Brehm and Gustav Radde. He was present at the First Ornithological Congress in Vienna in the year 1884, when he was elected Chairman of the Permanent Ornithological Committee, which office he held for ten years. In 1885 he published, with Von Hazeck, the 'Ornis,' after which he travelled much again. In 1900 he was elected President of the German Ornithological Society.

(These remarks are culled from a review of the life of Dr. Blasius from the pen of Mr. Nehr Korn, which appeared in the January No. of the 'Journal für Ornithologie.'—A. H.).

Mr. HOWARD SAUNDERS, Secretary B.O.U.—The following obituary notice appeared in the 'Ibis' for January 1908:—

"It is seldom that the Members of our Union—and, above all, the Editors—have to deplore the loss of so well-trying and trusty a friend as their late Secretary, Mr. Howard Saunders, whose death will be acutely felt, not only by his friends

in England and abroad, but by many a London scientific society. Noted as a traveller and an ornithologist he was a conspicuous figure among the zoologists of the Metropolis, and his writings, marked as they were by exceptional care and accuracy, will serve as a model for many future generations. He spared no pains to make his own work as perfect as possible, and was never known to refuse his aid, in the interests of science, to those occupied in similar pursuits, while his various activities were only terminated by his death, which occurred at his London residence, 7 Radnor Place, W., on October 20th, at the age of 72 years, after a long illness borne with the greatest fortitude.

“The son of Alexander and Elizabeth Saunders, he was born in London on Sept. 16th, 1835, and received his early education at Leatherhead and Rottingdean, subsequently to which he entered the office of Anthony Gibbs & Sons, merchants and bankers in the City. The foreign associations of that well-known firm soon caused his thoughts to turn in the direction of South America, and, being naturally of an adventurous and energetic disposition, in 1855 he determined to leave England, on a journey to Brazil and Chile. In 1856 he rounded Cape Horn on the way to Peru *, where he resided continuously until 1860. That country offered to an explorer, and particularly to an ornithologist, magnificent opportunities of which Saunders was not slow to avail himself, while, not content with these, he occupied his time to a considerable extent with antiquarian researches in the interior. On quitting Peru he crossed the Andes, struck the head-waters of the Amazon, and descended that river to Pará, the journals kept during this notable expedition enabling him in 1881 to contribute to ‘The Field’ a series of articles entitled ‘Across the Andes.’ The revolutionary spirit of many towns in South America at that epoch constituted a very serious danger, in addition to the usual risks of a wild and little-known country, but Saunders’s courage was by no means the least characteristic of his qualities.

* “His first contribution to ‘The Ibis’ was on the Albatrosses noticed on this voyage (‘Ibis,’ 1866, p. 124).”

“ In 1862 he returned to England, but only to devote most of his time until 1868 to the investigation of the Avifauna of Spain, a subject on which he soon became our recognised authority. Articles from his pen referring to this part of his career will be found in ‘The Ibis’ for 1869, 1871, 1872, and 1878 ; while he wrote in a more popular style for ‘The Field’ in 1874 his ‘Ornithological Rambles in Spain and Majorca.’ In 1868 he married Emily, the daughter of Mr. William Minshull Bigg, of Stratford Place, and took up his residence in England ; but he still found time to continue his continental expeditions, the results of which are incorporated in papers to ‘The Ibis’ on the birds of the Pyrenees in 1883-4 and those of Switzerland in 1891, while in 1893 these were followed by an account of ‘The Distribution of Birds in France.’

“Saunders was an active Member of the Zoological, Linnean, and Royal Geographical Societies, and was in much request as a member of Committees and Councils ; he was a Vice-President of the first-named and in close touch with the Gardens at Regent’s Park, where he took a strong interest in the animals and their management. He was elected a Member of the British Ornithologists’ Union in 1870, and in 1901 entered upon the office of Secretary, a post which he held till his death. He was also the first Secretary and Treasurer of the British Ornithologists’ Club, when that offshoot from the parent stem was founded in 1892. The fifth and seventh series of ‘The Ibis’ were issued under his editorship, conjointly with Selater ; while from 1877 to 1881 he acted as the Recorder of “Aves” for the ‘Zoological Record,’ and from 1880 to 1885 as Secretary of Section D (Zoology) at the meetings of the British Association. In 1884 he edited Vieillot’s ‘Analyse’ for the Willughby Society, and during his whole career in England he was a regular reviewer of books on Natural History, Sport, and Travel, especially for the ‘Athenæum.’ A paper on the eggs obtained by the Transit of Venus expedition of 1874-5 appeared in the ‘Philosophical Transactions’ for 1879, and the portion of the ‘Antarctic Manual’ referring to the Birds

came from his pen in 1901. He was actively concerned in the Bird-Department of the Fisheries Exhibition in London in 1883, while he always kept in close touch with the Naturalists of the United States, where he was an Honorary Member of the American Ornithologists' Union.

“Saunders had a world-wide reputation as an authority on the family *Laridæ* (Gulls and Terns), and published important papers on it in the ‘Proceedings of the Zoological Society of London’ for 1876–8, and the ‘Journal of the Linnean Society (Zoology)’ for 1878, hence he was naturally selected to write the portion of the twenty-fifth volume of the ‘Catalogue of the Birds in the British Museum’ which deals with this group. But to the public in general he will always be best known as the Editor, in 1884–5, of the last two volumes of the fourth edition of Yarrell’s ‘British Birds,’ commenced by Professor Newton, and as the author of that most excellent work ‘An illustrated Manual of British Birds,’ issued in 1889, wherein was included not only the whole essence of ‘Yarrell,’ but a large amount of fresh information, though two pages only were given to each species. The value of this volume to Palæartic Ornithologists was speedily made evident by the call for a second edition in 1899, after which date Saunders continued to keep up a constant correspondence with those who recorded additions to the British List, as published by himself in 1887, and the last article from his pen was one dealing with this subject in the new periodical entitled ‘British Birds.’

“The death of our Secretary will, however, be felt most particularly by his friends and fellow-workers, to whom he was always accessible and whose writings he was invariably willing to revise; in fact the correction of the proofs of others consumed a large portion of his time in later life. Kind and helpful as he was, we cannot end our notice without once more expressing our great sense of the loss that we and others have sustained.”

IX.—*Hints on Practical Collecting.*

A.—DIRECTIONS FOR PREPARING BIRDS' SKINS.

1. *Instruments and Material required.*—A sharp knife or scalpel, a pair of stout nail-scissors, some powdered arsenic or arsenical soap (or even powdered alum will effectually preserve skins), a little tow and cotton-wool, an awl or darning-needle, a little fine sawdust or plaster of Paris.
2. *Skinning.*—Plug the mouth and any bad shot-wound with cotton-wool, make a medium incision through the skin from the middle of the breast to just in front of the vent. Press with the fingers the skin apart from the sides of the body as far as the sides; cut through the flesh of the leg at the “knee-joint” on either side, so as to completely sever the leg from the body. Work the skin down to the root of the tail-feathers and cut across the backbone just above their roots; work the skin off the back to the wings, separate these at the shoulder-joints, then work the skin back, turning it inside out over the neck to the head; cut carefully into the ear to free the skin at that point and also over the eye, leaving the eyelid intact; remove from the skull the eyes, tongue, and flesh above the palate; cut a slice off the back of the skull to remove the brain. Now clear all superfluous flesh off the legs and wings by pushing the skin off the limbs as far as possible; the skinning is now complete.
3. *Making-up.*—The whole of the skin, including the bones left in, should now be thoroughly dressed with arsenic soap or powdered arsenic or even with a mixture of alum and salt-petre. The eye-holes should be filled up with a little cotton, and the skull carefully turned back inside the skin; a pointed match-stick wrapped round with cotton-wool forms an effective neck and should be fixed in the back of the skull; the body should now be filled up with cotton-wool and the sides of the skin

drawn together; the bird should then be placed in a cone of paper or have a tight band of paper pinned round it and allowed to dry.

4. *Ticketing*.—Every bird-skin should have attached to it a ticket on which should be recorded:—(1) name; (2) exact locality of collection; (3) date; (4) name of collector; (5) sex; (6) colour of iris, bill, and feet in the flesh.
5. *Sexing*.—Every bird should be sexed by dissection. The body as removed from the skin should be opened along the left side (right side when lying on its back) by an incision along the ribs. The intestines should be gently pushed on one side and the roof of the body-cavity, where lie the long reddish kidneys, examined; if at the top end of the kidneys there are two egg-shaped or sometimes black bodies lying side by side, these are testes and the sex is male; if there is on the left-hand side of the body, lying in a corresponding position, a yellowish mass of eggs of various sizes, the bird is a female.

B.—DIRECTIONS FOR COLLECTING BIRDS' EGGS.

1. Eggs should not be taken from a nest until the parent birds have been carefully watched and identified.
2. Eggs should be blown through one hole only; this should be made in the middle (not at one end) with a drill, and the blowing done with a blowpipe.
3. Each egg should be marked with a number and careful notes kept in regard to: (1) the name of the bird; (2) the date of taking and whether the eggs were fresh or incubated; (3) the number of eggs in the nest; (4) the situation, structure, and position of the nest.

THE JOURNAL
OF THE
SOUTH AFRICAN ORNITHOLOGISTS' UNION,

Vol. IV.

OCTOBER 1908.

No. 2.

X.—*The Report of the Committee for Migration for
the Years 1906 and 1907.*

WE hereby present to the Members of the S. A. O. U. our report for 1906 and 1907 on the immigration of the Northern and African Migrants.

The Committee was only elected towards the close of the former year, so that their work only actually commenced in 1907. In accordance with the decision arrived at by the Committee at their first meeting, a circular giving the names of the following six birds (all Northern migrants) was issued to all Members of the Union, with a supply of printed postcards, requesting them to fill in the dates of arrival, and to post the same in due course. The birds chosen were all easily recognisable, except perhaps the European Swallow, which, to the average resident in South Africa, can very easily be confused with the White-throated Swallow. The six birds were:—

1. European Swallow (*Hirundo rustica*, L.).
2. European Bee-eater (*Merops apiaster*, L.).
3. Lesser Kestrel (*Cerchneis naumanni* (Fleisch.)).
4. Greenshank (*Totanus littoreus* (L.)).
5. White Stork (*Ciconia ciconia* (L.)).
6. Black-wing Pratincole (*Glareola melanoptera*, Nordm.).

In addition to the circulars issued to Members, the Secretary sent out about one hundred more to various schoolmasters in the country, taking as a rough guide a series of circles from a common centre. Of these 100 schoolmasters circularised not one took the trouble of posting a single card! A truly different result to that of Mr. Herman's appeal in Hungary, when over 5000 responded !!

With a few exceptions, even the Members of the Union—many of whom are enthusiastic ornithologists—did not put themselves out in the slightest degree. To those gentlemen who did go to the trouble of rendering what assistance they could, we tender our heartiest thanks. This survey—being on such a small scale—was merely a test in order to discover whether one on a wider plane would meet with the desired response.

Notwithstanding the disappointingly small number of observations, we herewith issue another appeal, with the hope that it will be responded to in a more hearty manner. The importance of the work is probably scarcely realised by the majority of our Members, so we reproduce a translation of Mr. Otto Herman's little article in the 1907 volume of the 'Aquila.' The author is the recognised authority on matters pertaining to migration, so that we hope our request for increased activity on the part of our Members (and others) will not be in vain.

“ *A Light from the South.* By OTTO HERMAN, Director of the Hungarian Central Bureau of Ornithology.

“ I have endeavoured during the last forty years (1867 to 1907) to explain the migration problem of the Palæartic Birds of Passage. This work I afterwards introduced into the routine of the Hungarian Ornithological Central Office, but we find ourselves continually brought to bay by the non-solution of the question: Where do the bulk of our migratory birds spend their winter? General reports to the effect that some species remain in Southern Europe, while others winter in North Africa, and so forth, are not sufficient,

as it is absolutely necessary to have accurate data (giving the exact date) for the sake of comparison, and to obtain satisfactory results.

“ Beautiful faunistic works on the ornithology of Africa contain hardly an authenticated date of our migratory birds, and I found it necessary upon seeing Whitaker’s beautiful book, the ‘ Birds of Tunisia,’ to request the late Professor Newton in 1905 to draw the attention of his countrymen (so energetic in matters pertaining to Natural History) to the important point of adding the exact date on which species of migratory interest were obtained or observed. Notes such as ‘ beginning of March,’ ‘ middle of March,’ &c., are not of much use for the combination of observations, especially when we consider the pace at which migrating birds usually travel. Unfortunately, Professor Newton was of opinion that the adoption of this course would be too much additional trouble to the traveller. It is therefore apparent that without accurate data (giving the *exact* dates of the various observations) we can never hope to solve the problems of migration. From such data it would be possible to gauge the southerly limit of migration for any given *form* (viz. not only species) from a given Northern locality with some degree of certainty. Even if the information extended to only a few species it would give us a fair insight into the course and reason of the migration.

“ Therefore the article of W. L. Selater, ‘ The Migration of Birds in South Africa,’ in the J. S. A. O. U. for June 1906 (pp. 14–24), is a scientific work—ornithophænologically speaking—which might rightly be termed a real ‘ light from the South,’ and which we heartily welcome. Selater interprets the work of simultaneous observation quite correctly, and separates the Birds of South Africa (according to the ‘ Fauna of S. Africa ’—which describes 814 species) as follows :—

“ Residents 631, Northern migrants 76, African migrants 21, partial migrants 50; 36 species breed on islands. The territory is taken as from the south of the Zambesi. (Here

follows a list of the Northern migrants as given by Selater in his paper above mentioned.) I have no time now to discuss the data from which Selater made up his list of Northern migrants, as the 14th volume of the 'Aquila' is ready for press and the matter requires more leisure than is now at my disposal, but I will revert to it in the next volume. Suffice it to remark that in Pretoria a Committee has been formed for Protection and Migration, with Dr. J. W. B. Gunning as Chairman and Alwin Haagner as Secretary. This Committee has issued a postcard containing the names of the following six species: *Merops apiaster*, *Hirundo rustica*, *Cerchneis naumanni*, *Totanus littoreus*, *Ciconia ciconia*, and *Glareola melanoptera*. These cards call for observations on the arrival and departure of the aforementioned species, and the survey is after the model of the great Swallow survey of the Hungarian Ornithological Office of 1898, which is no doubt well known to our South African colleagues. In a letter to Selater we suggested the following modification of the list: *H. rustica* and *C. ciconia* to remain, and that for the remaining species *Cerchneis respertina*, *Coracias garrula*, *Totanus calidris*, and *Cuculus canorus* should be substituted. This alteration is suggested by the fact of the importance of taking such species as best admit of observation in Europe and those that have already been well worked up, such as *Oriolus galbula* and others in Middendorff's 'Isciptesen Russlands.'

"We heartily wish our South African colleagues an auspicious commencement.

"OTTO HERMAN."

"Budapest, Nov. 1907."

I. List of Observing Stations.

	Place and District.	Colony or State.	S. lat.	E. long.
1.	Amsterdam, Ermelo	Transvaal.	26° 42'	30° 17'
2.	Bethulie	O.R.C.	30 30	25 58
3.	East London	Cape Colony.	33 2	27 54
4.	Ermelo	Transvaal.	26 33	30 0
5.	Flagstaff, Pondoland	Cape Colony.	31 3	29 32
6.	Kimberley, Griqualand W.	Do.	28 43	24 47
7.	Komatipoort	Transvaal.	25 30	32 0
8.	Lusikisiki, Pondoland	Cape Colony.	31 18	29 41
9.	Modderfontein, Pretoria	Transvaal.	25 55	28 8
10.	Rolfontein, Amersfoort	Do.	26 56	30 0
11.	Stutterheim	Cape Colony.	32 33	27 28
12.	Swaziland Border, Lake Chrissie	Transvaal.	26 15	30 30
13.	Van Wijks Vlei, Carnarvon	Cape Colony.	30 25	21 50
14.	Vrede	O.R.C.	27 26	29 15
15.	Vereeniging	Tvl. border.	26 30	27 58

II. Migration Report for 1906.

The following is the statement of the reports received for the year 1906 (before the postcards were issued) :—

ARRIVALS, 1906.

PLACE.	OBSERVER.	DATE.	WIND AND REMARKS.
European Swallow (<i>Hirundo rustica</i> , L.).			
Amersfoort (Rolfontein).	C. H. Taylor.	28. 8. 06.	
Modderfontein.	A. K. Haagner.	5. 10. 06.	E., mod.
White-throated Swallow (<i>Hirundo albigularis</i> , Strickl.).			
Amersfoort (Rolfontein).	C. H. Taylor.	5. 9. 06.	
Modderfontein.	A. K. Haagner.	8. 9. 06.	N., very gentle.

PLACE.	OBSERVER.	DATE.	WIND AND REMARKS.
Stripe-breasted Swallow (<i>Hirundo cucullata</i> , Bodd.).			
Modderfontein.	A. K. Haagner.	5. 10. 06.	E., mod.
Rufous-breasted Swallow (<i>Hirundo semirufa</i> , Sund.).			
Modderfontein.	A. K. Haagner.	1. 9. 06.	
Kimberley.	W. Kirby.	20. 8. 06.	
Pratincole (<i>Glareola melanoptera</i> , Nordm.).			
Modderfontein.	A. K. Haagner.	14. 10. 06.	E.N.E., gentle.
Amersfort (Rolfontein).	C. H. Taylor.	8. 10. 06.	
European Swift (<i>Apus apus</i> , L.).			
Kimberley.	W. Kirby.	2. 10. 06.	

DEPARTURES, 1906.

White-throated Swallow (<i>Hirundo albicularis</i> , Strickl.).			
Modderfontein.	A. K. Haagner.	18. 3. 06.	
Whiskered Tern (<i>Hydrochelidon hybrida</i> , Pall.).			
Modderfontein.	A. K. Haagner.	30. 3. 06.	
European Swallow (<i>Hirundo rustica</i> , L.).			
East London.	John Wood.	25. 3. 06.	

III. Migration Report for 1907 (Arrivals only).

European Swallow (<i>Hirundo rustica</i> , L.).			
Amsterdam.	C. H. Taylor.	3. 10. 07.	
Bethulie.	R. Chambers.	6. 12. 07.	Strong S.E. & S.W. (large flock).
Flagstaff.	C. G. Davies.	7. 11. 07.	N.W. (flocks).
Komatipoort.	J. Stevenson Hamil- ton.	25. 9. 07.	N. (few).
Modderfontein.	A. K. Haagner.	9. 10. 07.	N. & N.W., gentle (few).
Do.	Do.	10. 10. 07.	N., strong (flocks).
Swaziland Bor- der (below lat. 26°).	C. H. Taylor.	30. 9. 07.	

Owing to the paucity of the observations, nothing of the birds' movements can be deduced from the above, except that it *seems* as if they came down along the eastern side of the

sub-continent, and spread westwards as they travelled. The Bethulie date seems very late, but the observer may have overlooked the first arrivals.

PLACE.	OBSERVER.	DATE.	WIND AND REMARKS.
European Bee-eater (<i>Merops apiaster</i>, L.).			
Van Wijks Vlei, Carnarvon.	Lieut. Littledale.	2. 10. 07.	
Kimberley.	W. Kirby.	24. 9. 07.	
Bethulie.	Roland Chambers.	10. 10. 07.	S. (about 15 birds).
Greenshank (<i>Totanus littoreus</i> (L.)).			
East London.	John Wood.	6. 10. 07.	
Lusikisiki.	C. G. Davies.	14. 10. 07.	N.E., strong (single bird).
Kimberley.	W. Kirby.	18. 12. 07.	
Modderfontein.	A. Haagner.	1. 10. 07.	Three birds seen.
White Stork (<i>Ciconia ciconia</i> (L.)).			
Komatipoort.	J. Stevenson Hamil- ton.	20. 9. 07.	S.E. (two pairs).
Modderfontein.	A. Haagner.	26. 9. 07.	One pair.
Lake Chrissie.	C. H. Taylor.	23. 11. 07.	Two.
Ermelo.	Do.	24. 11. 07.	One.
Flagstaff.	C. G. Davies.	9. 11. 07.	S.E. (one).
Stutterheim.	John Wood.	9. 11. 07.	
Bethulie.	R. Chambers.	17. 11. 07.	N. (about 100 birds).
Kimberley.	W. Kirby.	12. 12. 07.	
Lesser Kestrel (<i>Cerchneis naumanni</i> (Fleisch.)).			
Of this important and easily identified bird we have only received <i>one</i> record.			
Bethulie.	R. Chambers.	4. 1. 08.	Large flock.
Black-winged Pratincole (<i>Glareola melanoptera</i>, Nordm.).			
Amsterdam.	C. H. Taylor.	28. 6. 07.	Large flocks going east.
Bethulie.	R. Chambers.	10. 10. 07.	
Kimberley.	W. Kirby.	8. 12. 07.	
Brown-winged Pratincole (<i>Glareola fusca</i> (L.)).			
Ermelo.	C. H. Taylor.	8. 11. 07.	Large flocks going east.
Do.	Do.	17. 11. 07.	Hundreds here.
Do.	Do.	15. 1. 08.	Thousands about.

PLACE.	OBSERVER.	DATE.	WIND AND REMARKS.
White-throated Swallow (<i>Hirundo albigularis</i> , Strickl.).			
Modderfontein.	A. K. Haagner.	26. 8. 07.	N., gentle(flocks).
Vrede.	Capt. R. Hall, S.A.C.	10. 9. 07.	
Van Wijke Vlei.	Lt. Littledale, Y.L.I.	25. 8. 07.	N., variable.
Lusikisiki.	C. G. Davies.	29. 8. 07.	N.E., medium.
Stripe-chested Swallow (<i>Hirundo cucullata</i> , Bodd.).			
Modderfontein.	A. Haagner.	13. 10. 07.	Singly.
—	—	15. 10. 07.	Flocks.
Lusikisiki.	C. G. Davies.	5. 10. 07.	S.W., gentle(two).

SINGLE OBSERVATIONS.

Corn Crake.

Lusikisiki.	C. G. Davies.	7. 12. 07.	N.E. (two).
-------------	---------------	------------	-------------

Red-backed Shrike (*Lanius collurio*, L.).

Lusikisiki.	C. G. Davies.	3. 12. 07.	N. (three).
-------------	---------------	------------	-------------

Ethiopian Snipe (*Gallinago nigripennis*, Bp.).

Vereeniging.	D. F. Gilfillan.	3. 8. 07.	S.E., gales.
--------------	------------------	-----------	--------------

Red-breasted Swallow (*Hirundo semirufa*, Sund.).

Modderfontein.	A. K. Haagner.	31. 8. 07.	S.W., moderate.
----------------	----------------	------------	-----------------

Lesser Stripe-breasted Swallow (*H. puella*, Tem. & Schl.).

Lusikisiki.	C. G. Davies.	24. 10. 07.	N.E., gentle.
-------------	---------------	-------------	---------------

Yellow-billed Kite (*Milvus aegyptius* (Gm.)).

Lusikisiki.	C. G. Davies.	20. 9. 07.	E., moderate.
-------------	---------------	------------	---------------

Little Stint (*Tringa minuta*, Leisl.).

Lusikisiki.	C. G. Davies.	29. 9. 07.	N.E., strong.
-------------	---------------	------------	---------------

Curlew (*Numenius arquatus* (L.)).

Lusikisiki.	C. G. Davies.	29. 9. 07.	N.E., strong.
-------------	---------------	------------	---------------

Wood Sandpiper (*Totanus glareola* (L.)).

Flagstaff.	C. G. Davies.	29. 10. 07.	S.E.
------------	---------------	-------------	------

Willow Wren (*Phylloscopus trochilus* (L.)).

Flagstaff.	C. G. Davies.	18. 11. 07.	S.
------------	---------------	-------------	----

Common Sandpiper (*Tringoides hypoleucus* (L.)).

Lusikisiki.	C. G. Davies.	18. 8. 07.	N.E., strong.
-------------	---------------	------------	---------------

PLACE.	OBSERVER.	DATE.	WIND AND REMARKS.
DEPARTURES, 1908.			
European Swallow (<i>Hirundo rustica</i> , L.).			
Modderfontein.	A. Haagner.	1. 3. 08.	Saw them first "massing" on this date. Flocks seen flying north on the 11th, 17th, & 30th March.
Modderfontein.	A. Haagner.	6. 4. 08.	Last few stragglers seen. Very cold, 0° Cent. S. winds.
Johannesburg.	E. H. U. Draper.	31. 3. 08.	Flock seen going north, flying very low and easily recognisable. S. winds.

Lesser Kestrel (*Cerchneis naumanni* (Fleisch.)).

Modderfontein.	A. Haagner.	6. 3. 08.	Seen in flocks, settled and flying slowly to the north. None seen here after 21st March.
—	—	21. 3. 08.	

(Signed) Dr. J. W. B. GUNNING (Chairman). }
 F. THOMSEN. } Committee
 Dr. GOUGH. } for
 A. K. HAAGNER (Secretary). } Migration.

XI.—*A Description of some Portion of the Oological Collection of South African Birds' Eggs in the Transvaal Museum, Pretoria.* By JOHN A. BUCKNILL, M.A., F.Z.S., M.B.O.U.

THE inception of the Transvaal Museum—started some years ago—was of a comprehensive character, and the original scheme, as outlined by the principal mover in the project which has now assumed so important a factor in local educational schemes, was due to its Director, Dr. Gunning, F.Z.S. Amongst other collections of zoological interest,

Dr. Gunning prepared—prior to the war—a small collection of eggs of various species of birds. This small collection, since it was removed into the new Museum in Boom Street, Pretoria, has, through Dr. Gunning's energy, been added to and much amplified by purchase and exchange until it now is, probably, the finest and most important collection of the eggs of South African birds, contained under one roof, in the world.

I had hoped that I should have had the privilege of being able, with the assistance of my friend Mr. C. B. Horsbrugh, to describe carefully the whole of this Oological Collection, but unfortunately, after completing an account of a very few species, my official duties were demanded away from the Transvaal, and I had, perforce, to leave my task unfinished. In this short paper I have endeavoured to describe those eggs in the collection of the Transvaal Museum which I, personally,—during my leisure hours in 1906—had the chance of carefully measuring, examining, and recording. I can only regret that the time at my disposal did not permit me to examine more.

In the Museum cases the eggs are exhibited to the public in the sequence and under the nomenclature of Reichenow. I regret that I have not Reichenow's work before me, and therefore present my notes in order, number, and nomenclature of Selater's "Check-List of the Birds of South Africa" (*Annals of the South African Museum*, vol. iii. part viii.). It is perhaps necessary to add that the collection (numbering some 900 clutches) is in no way a haphazard conglomeration of doubtfully identified eggs. A few—a very few—of the older eggs were obtained from the Pietermaritzburg Museum, but practically all of these have long since been discarded. The large majority of the specimens in the collection have been obtained by the acquisition of the collections—or part of the collections—of perhaps the best-known and most reliable oologists in South Africa—Mr. Austin Roberts, of Potchefstroom, Transvaal, and Mr. R. H. Ivy, of Grahamstown, Cape Colony. Valuable presentations have

been made by and exchanges effected with the well-known specialist Major Sparrow, and some interesting gifts have been made from time to time by local persons interested in the science. Of the remainder it may be remarked that Mr. Krantz, whose name frequently appears here, was the taxidermist of the local museum prior to the war, and Mr. Wilde is a practical and locally well-recognized naturalist and hunter with much Rhodesian experience. The provenance and identity of the specimens described may be therefore regarded as substantially without doubt.

I may, perhaps, add a few remarks relative to my descriptions.

The shape of eggs is always hard to describe accurately. Most eggs have a well-marked obtuse end and an acute or narrow or lower end; few are really oval, many are ovate, and most taper slightly from obtuse to acute length. The narrower end of an egg is, as a rule, less splashed with colour than the obtuse—perhaps at the greatest enlargement of the ovipository organs the pigment-glands are most extended and deposit most freely, which would account for the tendency to zoning in colour in the eggs of many species.

An accurate description of colour is also most difficult, and depends much upon personal expressions of colour and the light in which an egg is examined.

I use the word "texture" throughout as an indication of appearance under a low microscopic power and the feel of the egg when applied to the cheek.

2. *CORVUS SCAPULATUS*, Daud. (Pied Crow.)

This species is poorly represented by six eggs only.

1. Clutch 4: 9.10.04. Six Mile Spruit, Pretoria district, Transvaal: e coll. Austin Roberts.

2. Two eggs: Nov. 1904. Id. loc.: taken by E. M. Skea.

These six eggs are from the same nest and the product of the same pair of birds. They consequently do not vary much *inter se*, though they are, on comparison with Reichenow's measurements, all of rather small size. The nest, a rough

structure, about a foot in diameter and composed of twigs, rag, wool, hair, and miscellanies, was placed at the fork of the branch of a large mimosa tree about 35 ft. from the ground.

In shape they are a tapering elongated oval ; the texture is smooth ; surface glossy.

<i>Sizes.</i> Maximum length	43·9	mm.
Minimum	41·0	„
Maximum breadth	27·7	„
Minimum	26·5	„
Mean length of the six	42·5	mm.
„ breadth	27·0	„

Colour. The ground-colour is a very pale bluish-green ; the eggs are rather thickly blotched and streaked with spots and lines of varying size and length of greenish-yellow brown. The eggs are rather in general appearance like those of the English Carrion Crow (*C. corone*, Linn.). In three of the eggs of clutch 1 and in one of 2 the markings are evenly distributed ; in one of clutch 1 and one of 2 the markings are much less abundant at the narrower end.

3. *CORVUS CAPENSIS*, Licht. (Black Crow.)

There are sixteen eggs of this species in the Museum. Of these perhaps it will suffice to describe :

1. Clutch 4: 15.9.02. Potchefstroom, Transvaal: e coll. A. Roberts.
2. Clutch 3: Sept. 1899. Mooi River, Natal: taken by Major Sparrow.

Clutch 1 is a beautiful and typical clutch. In shape a tapering elongated oval ; texture smooth ; surface rather dull.

<i>Sizes.</i> Max. length	51·0	mm.
Min.	48·5	„
Max. breadth	31·8	„
Min.	30·6	„
Mean length	49·8	„
„ breadth	31·2	„

Colour. These eggs are extremely beautiful, and give one a general idea of being a warm pink colour, somewhat similar to the impression produced by the appearance of the rare pink variety of the egg of *Larus argentatus* (Herring Gull). On examination it is found that the ground-colour is a delicate cream, the surface being thickly and closely suffused with under markings of pinkish brown and over markings of a more red-brown tinge. None of these spots are larger than about 6.6×4.1 mm.

In one egg the markings tend to disappear at the narrower end; in the other three they are very evenly distributed.

Clutch 2, though not in a very good state of preservation, being end-blown and one egg being rather damaged, is quite abnormal in appearance. They appear to be considerably shorter, and although, owing to being end-blown, the length-measurement cannot perhaps be taken as absolutely accurate, the mean length-measurement of the two eggs which can be measured at all is only 44.9 mm., whilst the mean breadth is 31.1 mm. These eggs are much less thickly spotted; the spots are much larger and less red but more sienna-coloured. In two of the eggs the markings are almost entirely confined to the narrower end. The pink impression is not nearly so marked as in clutch 1. This is a striking though not beautiful clutch.

Of the remaining nine eggs it may perhaps be said that although they vary considerably in size they approximate in general appearance to clutch 1.

3. Three eggs: Jan. 1899. Grahamstown, Cape Colony: taken by R. H. Ivy.
4. Two eggs: 1897. Natal.
5. Three eggs: no date. Potchefstroom: taken by N. Roberts.
6. One egg: no data.

One of the clutch 5 eggs is extremely small, measuring only 38.1×30.5 mm. The others are mostly rather smaller than the mean of clutch 1, which I regard as a particularly fine set.

Excluding the dwarf egg, the measurements of the remaining eight are :—

Max. length 48·8 mm.

Min. „ 43·4 „

Max. breadth 32·6 „

Min. „ 30·0 „

Mean length of the eight eggs 46·5 mm.

„ breadth „ „ 31·0 „

A nest taken at Koodoo's Poort, Pretoria district, and in the Pretoria Museum, is about a foot in diameter, made of twigs and lined with hair and a little wool. It was placed in the branches of a small tree about 15 ft. from the ground.

5. *BUPHAGA ERYTHORHYNCHA* (Stan.). (Red-billed Oxpecker.)

One egg : 21. 2. 01. Howick, Natal: e coll. Austin Roberts.

In shape nearly oval, slightly attenuated to one end ; texture smooth ; surface dull.

Size. 23·5 × 17·0 mm.

Colour. Ground-colour dull white, with a few small spots of reddish brown.

6. *CREATOPHORA CARUNCULATA* (Gm.). (Wattled Starling.)

One egg : Oct. 1903. Grahamstown, Cape Colony : e coll. R. H. Ivy.

In shape oval, tapering somewhat to the one end ; texture smooth ; surface rather but not very glossy.

Size. 29·8 × 21·6 mm.

Colour. Very pale blue.

7. *AMYDRUS MORIO* (L.). (Red-winged Starling.)

1. Three eggs : Oct. 1900. Durban, Natal: taken by Major Sparrow.

2. Three eggs: 4. 2. 01. Karkloof, Howick, Natal: e coll. Austin Roberts.

3. One egg : Jan. 1893. Koonap, Cape Colony, with one egg of *Coccyzus glandarius* (Great Spotted Cuckoo) : e coll. R. H. Ivy.

4. Two eggs : Jan. 1906. Grahamstown, Cape Colony :
e coll. R. H. Ivy.

In shape these Starlings' eggs vary a good deal, some being much more elongated and tapering than others ; the texture is smooth and the surface not very glossy.

Colour. The ground-colour is a very pale greenish-blue, sparsely spotted with superficial markings of varying shades of brown and reddish-brown and with sub-surface markings of slate and drab.

<i>Sizes.</i> Max. length	37.0	mm.
Min. „	31.8	„
Mean „ (of 7)	34.07	„
Max. breadth	25.2	„
Min. „	22.6	„
Mean „ (of 7)	23.90	„

The Cuckoo's egg is somewhat similar to the Starling's eggs, but the ground-colour is greener and the spots, which are more profusely and evenly distributed, are of a more olive paler brown.

Size. 32.8 x 26.2 mm.

9. SPREO BICOLOR (Gm.). (Pied Starling.)

A considerable number of clutches, of which I shall only describe two.

1. Clutch 5 : 26.9.00. Howick, Natal : e coll. Austin Roberts.

2. Clutch 6 : Nov. 1896. Grahamstown, Cape Colony :
e coll. R. H. Ivy.

Shape a tapering oval ; texture smooth ; surface in clutch 1 glossy, in clutch 2 duller.

In clutch 1 the ground-colour is a warm bluish-green ; two eggs are without spots, the other three have a few superficial splashes of pale brown.

In clutch 2 one egg is much larger, pure white, and unspotted, and may be a Cuckoo's of some kind ; the remaining five are of the same ground-colour as in clutch 1, and two are unspotted, three having a few spots similar to those in clutch 1.

<i>Sizes.</i> Max. length	35.4	mm.
Min. „	30.0	„
Mean „ (of 10)	31.95	„
Max. breadth	22.3	„
Min. „	21.0	„
Mean „ (of 10)	21.75	„
White egg	39.3 × 25.0	„

The other eggs in the collection show no marked variation, though some are rather more heavily marked than others.

14. *LAMPROCOLIUS PHŒNICOPTERUS* (Sw.). (Red-shouldered Glossy Starling.)

- | | |
|--------------------------------------|---------------------------------------|
| 1. Clutch 4 : Dec. 1895. Fish River, | } Cape Colony :
e coll. R. H. Ivy. |
| 2. 1 egg : Nov. 1903. Grahamstown, | |
| 3. 1 egg : Dec. 1905. Grahamstown, | |

Similar to clutch 1 of the next species, but ground-colour a warmer, deeper, and healthier blue. In clutch 2 the spots are stronger and more numerous than in clutch 1 or the 1903 and 1905 eggs. The ground-colour in the 1903 is a splendid warm blue.

Sizes. The eggs vary.

Max. length	31.5	mm.
Min. „	26.8	„
Mean „ (of 9)	28.7	„
Max. breadth	21.8	„
Min. „	19.4	„
Mean „ (of 9)	20.7	„

15. *LAMPROCOLIUS PHŒNICOPTERUS BISPECULARIS* (Strickl.). (Lesser Red-shouldered Glossy Starling.)

1. Clutch 3 : 1894. Karree River, Transvaal : taken by P. Krantz.

Shape an elongated gently tapering oval ; texture not very smooth and not much surface-gloss.

Colour. Very pale bluish-green ground-colour, with a few spots of pale brown. Probably these eggs are a good deal faded.

2. Clutch 3 : 6.11.03. Waschbank, Natal : e coll. Austin Roberts.

3. Clutch 2 : 3.11.04. De Wet's Drift, Vaal River, Potchefstroom, Transvaal : same collection.

These eggs are practically indistinguishable from those of the preceding species. In one egg of the second clutch the splashes converge towards acute end.

<i>Sizes.</i> Max. length	30.0	mm.
Min. „	28.9	„
Mean „ (of 5)	29.28	„
Max. breadth	21.1	„
Min. „	20.8	„
Mean „ (of 5)	20.98	„

22. *ORIOLOUS LARVATUS*, Licht. (Black-headed Oriole.)

1. One egg : Jan. 1902. }
 2. „ „ : Dec. 1904. } Grahamstown, Cape Colony :
 3. Clutch 2 : „ 1904. } e coll. R. H. Ivy.

Slightly tapering oval ; smooth texture ; glossy surface.

Ground-colour white, with not profuse but handsome superficial and sub-surface spots of olive-brown, confined chiefly to obtuse end. The largest splash measures about 4×4 mm.

<i>Sizes.</i> 29.8×21.3 ; 27.7×20.6	mm.
28.0×21.9 ; 29.0×22.3	„

188. *EUROCEPHALUS ANGUITIMENS*, A. Sm. (White-crowned Shrike.)

One egg : 1894. Matlabas, Transvaal : taken by P. Krantz.

There were two eggs in this clutch, one of which was exchanged with Major Sparrow.

This is a typical Shrike's egg. In shape a tapered oval ; texture smooth, with glossy surface.

Colour. Ground-colour soft white, with sub-surface splashes of transparent appearance of grey, lilac, and drab and superficial over-splashes of a pleasant olive-green, chiefly towards the obtuse end. Quite a bold and striking egg.

Size. 28.0×21.6 mm.

221. *ANDROPADUS IMPORTUNUS* (Vieill.). (Sombre Bulbul.)
A very remarkable series, many with Cuckoos' eggs.

1. Clutch 2: 1899. Durban, Natal: e coll. Major Sparrow.
2. „ 2: Jan. 1901.
3. One egg: Dec. 1900.
4. Clutch 2: Sept. 1905.
5. „ 2: Nov. 1893.
6. „ 2 + 1 *Coccytes serratus* (Black - crested Cuckoo): 25.11.05.
7. Clutch 2+2 *C. serratus*: Jan. 1896.
8. „ 2 + 1 *C. clamosus* (Black Cuckoo): Sept. 1905.
9. Clutch 2 + 1 *C. serratus* and one *C. clamosus*: no date.
10. Clutch 2: Feb. 1900.
11. 1 egg+1 *C. clamosus*: Dec. 1902.
12. 1 egg+1 *C. serratus*: Dec. 1905.
13. 1 egg+1 *C. serratus*.
14. 1 egg+1 *C. clamosus*: Dec. 1905.

The above thirteen sets all from Grahamstown, Cape Colony: e coll. R. H. Ivy.

15. Clutch 2: 30.12.00. Howick, Natal: e coll. Austin Roberts.

The eggs of the Bulbul are ovate in shape; texture smooth and surface of a soft glossy appearance, which is so often seen in the eggs of *Sylvia simplex* (Garden Warbler) and *Sylvia atricapilla* (Blackcap).

Colour. Looked at as a series the eggs do not vary very much, but they divide themselves on examination into two types. In type A the ground-colour is white; in type B the ground-colour is buffish.

In most of the eggs the shell is rather well-marked with spots, splashes, and streaks, both superficial and sub-surface; the former are of dark sepia and greenish dark brown, the latter show through in faint grey. The markings are chiefly found towards the obtuse end, in some very markedly. In some of the eggs there is a strong tendency to zone in colour.

In the buff-ground specimens the markings show up

deeper, with some rather "Bunting-like" scrawl-markings which seem to come up through the shell.

Clutches 2, 5, 8, 11 are type A.

Clutches 1, 4 are intermediate.

Clutches 3, 6, 7, 9, 10, 12, 13, 15 are type B.

Sizes. Max. length 26.7 mm.

Min. " 23.2 "

Mean " (of 19) 24.93 "

Max. breadth 17.9 "

Min. " 16.0 "

Mean " (of 19) 16.97 "

Some few of the eggs were damaged and could not be accurately measured, so have been omitted from measurement.

The Cuckoos' eggs are of oval shape; smooth texture and slight gloss.

Colour. White.

Sizes :—

Coccyzus serratus, Sparrm.

(a) In clutch 6 : 28.0 × 22.7 mm.

(b) " " 7 : 27.7 × 22.5 " (No. 1).

(c) " " 7 : no measurement taken by accident (No. 2).

(d) " " 9 : 26.0 × 21.8 mm.

(e) " " 12 : 26.0 × 21.5 "

Cuculus clamosus, Lath.

(a) In clutch 8 : 25.2 × 21.0 mm.

(b) " " 9 : 26.0 × 21.0 "

(c) " " 11 : 28.4 × 23.0 "

(d) " " 14 : 26.0 × 21.6 "

In clutch 13 I was unable to identify the eggs with certainty. My impression as to the result of the examination of this series of Cuckoos' eggs is that it is difficult to distinguish the eggs of the two species with certainty. In all cases in which parasitic species lay their eggs in the nests of other species there is always some difficulty in identification. Apparently both these Cuckoos deposit eggs very similar in appearance in the nests of the same host, so that the difficulty of identification is rendered very troublesome. The parasitic

character, however, of many South African birds—perhaps in the case of species in which it is hitherto unexpected—is a matter well worth careful study.

223. *CHLOROCICHLA FLAVIVENTRIS*, A. Sm. (Yellow-bellied Bulbul.)

Clutch 2 : 1899. Durban, Natal : e coll. Major Sparrow.
Shape ovate ; texture smooth ; surface glossy.

Colour. Very handsome : whitish ground-colour, warmly marbled with superficial splashes and dots of light brown tinged with greenish yellow, and sub-surface markings showing up in dark slate.

Sizes. 24·8 × 16·7 ; 25·8 × 17·6 mm.

226. *PHYLLOSTROPHUS CAPENSIS* (Sw.). (Cape Bristle-necked Bulbul.)

1. One egg : Jan. 1901. Grahamstown, Cape Colony :
e coll. R. H. Ivy.

2. Clutch 2 : 8.12.00. Kilgobbin, Howick, Natal :
e coll. Austin Roberts.

Ovate shape ; smooth texture and fair gloss.

Colour. Ground-colour greyish-white ; shell marbled with suffused splashes, both superficial and sub-surface, which show a marked tendency to zone at obtuse end. Both over and under markings are of an olive smoky grey, and the general colouring is not unlike that of the egg of *Caprimulgus europæus* (European Nightjar).

Sizes. 23·3 × 15·6 ; 23·1 × 17·0 ; 23·0 × 17·1 mm.

229. *PARISOMA SUBCÆRULEUM* (Vieill). (Tit Babbler.)

1. Clutch 2 : 29.11.02. Potchefstroom, Transvaal :
e coll. Austin Roberts.

2. One egg + one egg of *Coccyzus jacobinus* (Black-and-White Cuckoo) : same date, loc., and coll.

Babblers' eggs are tapering oval in shape, smooth texture, and not much gloss.

Colour. Ground-colour white, delicately splashed with superficial splashes and spots of pale yellow-ochre ; sub-surface splashes rather darker in appearance.

Sizes. 17.9 × 13.9 ; 17.9 × 13.9 ; 18.5 × 13.9 mm.

The Cuckoo's egg is a rounded oval, of smooth texture and rather highly-glossed surface.

Colour. White.

Size. 26.4 × 23.0 mm.

238. ACROCEPHALUS BÆTICATUS (Vieill.). (African Reed-Warbler.)

1. Clutch 3 : 12.1.02. Potchefstroom, Transvaal :
e coll. Austin Roberts.

2. Clutch 3 : 21.1.02. Same locality and collection.

3. ,, 2 : 23.12.00. Kilgobbin, Howick, Natal :
same collection.

Shape slightly tapering oval ; texture smooth and surface well glossed.

Colour. There is not much variation. In clutches 1 and 2 the ground-colour is white, but in clutch 3 is faintly tinged with pale green.

In all the shells are splashed and speckled all over with superficial markings of medium olive-green and sub-surface markings of a slaty-grey appearance. The markings are more numerous towards the obtuse end.

Sizes. Max. length 19.3 mm.

Min. ,, 17.4 ,,

Mean ,, (of 8) 18.13 ,,

Max. breadth 14.0 ,,

Min. ,, 13.0 ,,

Mean ,, (of 8) 13.43 ,,

294. TURDUS LITSIPSIRUPA (A. Sm.). (Garden-scraper Thrush.)

1. Clutch 3 : no date. Matabeleland : taken by C. Wilde.

2. ,, 3 : 23.10.02. Potchefstroom, Transvaal : e
coll. Austin Roberts.

Not much difference between the clutches. Shape ovate ; texture smooth ; surface slightly glossy, the second clutch having more gloss.

Clutch 1. Ground-colour white, with a tinge of green spotted with small spots, no larger than a pin's head, of

deep, rather reddish brown, the spots being both superficial and sub-surface.

In clutch 2 the ground-colour is of a creamy tint with a slight rufous tinge, and the spots are more numerous, larger, and very rufous.

Sizes. Clutch 1: 27.0×20.6 ; 25.8×20.4 ; 27.4×21.5 mm.
 ,, 2: 28.7×19.7 ; 27.8×20.5 ; 28.9×19.4 ,,

296. *TURDUS OLIVACEUS*, L. (Cape Thrush.)

A considerable number of eggs, which, owing to variation, require somewhat careful description.

1. Clutch 2 : Nov. 1905. Grahamstown, Cape Colony :
e coll. R. H. Ivy.
2. Clutch 3 : 3. 11. 00. Kilgobbin, Howick, Natal ; e
coll. Austin Roberts.
3. Clutch 2 : 21. 10. 05. }
4. ,, 2 : Nov. 1901. } Grahamstown, Cape Colony :
5. ,, 2 : 13. 11. 05. } e coll. R. H. Ivy.
6. ,, 2 : Sept. 1893. }
7. ,, 2 : Oct. 1895. }
8. One egg : no date. Potchefstroom, Transvaal : taken
by N. Roberts.
9. Clutch 2 : 1897. Potchefstroom, Transvaal : e coll.
Austin Roberts.

These eggs may roughly be divided into two types, which I call the "Blue" and "Brown" types.

Shape ovate ; texture smooth and surface glossy.

Clutch 1. These are the "Brown" type, and are rather like the eggs of *Turdus viscivorus* (Mistletoe Thrush). The ground-colour is a dirty white, the shell thickly covered with superficial and sub-surface splashes of dirty rufous-brown.

Sizes. 30.0×21.5 ; 28.3×22.0 mm.

Clutch 2. These are the "Blue" type, quite unlike clutch 1. Resemble rather the eggs of *Turdus musicus* (Song Thrush). Ground-colour a pale greenish-blue, the shell spotted more or less evenly with small spots, both superficial and sub-surface, of medium brown with a slightly reddish tinge. In one of these three eggs there is no marking at all except one large brown splash on one side. This is, of course, a freak.

Sizes. 31.8 × 23.0 mm.

31.1 × 22.8 „

28.6 × ? „ (abnormal egg).

Clutch 3. These are of the "Brown" type, but the splashings are bolder and less dirty.

Sizes. 31.0 × 22.0 ; 27.0 × 21.9 mm.

Clutch 4. These eggs are remarkably like the common eggs of *Turdus merula* (Blackbird). Ground-colour very pale greenish-blue ; spots small and well-marked, but with a streak-like tendency.

Sizes. 29.6 × 21.5 ; 30.6 × 20.5 mm.

Clutch 5. One egg (27.0 × 22.3 mm.) is like clutch 1 ; the other (29.0 × 21.0 mm.) like clutch 2.

Clutch 6. Ground-colour pale green, but splashes well-marked and of the rusty-brown type. One egg is very handsome, the splashing of a bold brown being confined chiefly to the obtuse end.

Sizes. 28.5 × 22.1 ; 27.7 × 22.0 mm.

Clutch 7. A nice intermediate clutch rather like clutch 4, though in one egg, which is much elongated, the markings are warmer and bolder.

Sizes. 34.1 × 22.0 ; 30.8 × 22.6 mm.

Clutch 8. "Brown" type : like clutch 1 (29.4 × 22.0 mm.).

„ 9. „ „ : like clutch 1.

Sizes. 29.0 × 22.4 ; 30.0 × 21.5 mm.

297. *TURDUS CABANISI*, [Bp.] Cab. (Cabanis's Thrush.)

Clutch 3 : 9.11.03. Kromdraai, Natal : e coll. Austin Roberts.

Not, I believe, hitherto described.

Shape ovate ; texture smooth and surface glossy.

Colour. Extremely handsome ; ground-colour a clear pale greenish-blue ; surface boldly and finely splashed with well-defined superficial and sub-surface markings of clear liverish brown.

Sizes. 27.0 × 21.7 ; 27.5 × 21.9 ; 27.6 × 21.6 mm.

300. *MONTICOLA RUPESTRIS* (Vieill.). (Cape Rock Thrush.)

Several interesting sets.

1. Clutch 2 + one egg of *Cuculus solitarius* (Red-chested Cuckoo) : Nov. 1897. Grahamstown, Cape Colony : e coll. R. H. Ivy.
2. One egg + one egg of same Cuckoo : Nov. 1900. Same locality and collection.
3. Clutch 2 : Jan. 1906. } Same locality and collection.
4. One egg : Feb. 1896. }
5. Clutch 2 : Jan. 1904. }

Shape of Thrushes' eggs is elongated oval ; texture smooth and surface glossy.

In clutch 1 the eggs are pure white in ground-colour, with faint pin-pricks of tiny spots of brown, which in one of the eggs forms a *very* small faint cap at the obtuse end.

In clutch 2 the egg has a very faint tinge of pale blue with no markings.

In clutch 3 one egg has a distinct blue tinge without markings, and the other is white, rather strongly rashed with reddish-brown markings.

In clutch 4 the egg is not remarkable ; white.

In clutch 5 one egg is white, without marks, and one marked rather strongly.

Sizes. Clutch 1 : 28.6 × 20.6 ; 28.5 × 20.7 mm.

„ 2 : 26.6 × 19.7 „

„ 3 : 28.0 × 20.5 ; 27.4 × 20.8 „

„ 4 : 27.3 × 20.3 „

„ 5 : 28.7 × 20.5 ; 29.8 × 20.5 „

The Cuckoos' eggs are of elongated shape, smooth texture, and very high gloss.

The colour is a fine clear brownish-olive chocolate, but in the egg with clutch 2 there is no olive colour apparent.

Sizes. 25.2 × 18.6 ; 25.0 × 19.3 mm.

301. MONTICOLA EXPLORATOR (Vieill.). (Sentinel Rock Thrush.)

1. Clutch 2 : Dec. 1904. Grahamstown, Cape Colony : e coll. R. H. Ivy.
2. One egg : Nov. 1895. Same locality and collection.
3. Clutch 3 : 16.10.04. Pretoria, Transvaal : e coll. Austin Roberts.

Shape elongated oval ; texture smooth. In 1 surface has some gloss ; in 2 it is dull ; and in clutch 3 a good deal of gloss.

Clutches 1 and 2 are white with a faint tinge of blue, but clutch 3 are pale blue like the colour of eggs of *Sturnus vulgaris* (English Starling).

Sizes. Clutch 1. 27.4×20.0 ; 26.3×20.4 mm.

„ 2. 28.0×20.0 mm.

„ 3. 23.9×18.3 ; 23.8×18.4 ; 24.3×18.4 mm.

304. MYRMECOCICHLA FORMICIVORA (Vieill.). (Ant-eating Chat.)

Clutch 4: 8.10.03. Potchefstroom, Transvaal : e coll.

Austin Roberts.

Shape oval ; texture smooth and surface with no gloss.

Colour. White.

Sizes. 24.8×18.8 mm.

23.3×18.0 „

23.4×18.0 „

23.9×18.5 „

305. MYRMECOCICHLA BIFASCIATA (Tem.). (Buff-streaked Chat.)

1. Clutch 3 : 19.10.02. Claremont, Natal : e coll.

Austin Roberts.

2. One egg : 26.11.03. Bushman's River, Natal : e coll.

Major Sparrow.

Shape an elongated oval ; smooth texture and surface not glossy.

Clutch 1. In two of the eggs the ground-colour is white with a tinge of green ; in the third egg the ground-colour is white. The eggs are profusely spotted with ill-defined and partially confluent rusty brown markings, which chiefly appear at the obtuse end, under-surface markings show as a faint slate-colour. In one of the first two eggs the lower end is almost free from spots.

The Bushman's River egg is like the first two of clutch 1, though slightly larger.

Sizes. Clutch 1. (a) 23.3×16.8 mm.

(b) 23.4×17.0 „

(c) 24.0×16.9 „

Bushman's River egg 25.4×16.1 „

306. PRATINCOLA TORQUATA (L.). (South African Stone Chat.)

Several clutches.

1. Clutch 2 : no date. Pretoria, Transvaal : taken by L. v. Blerk.
2. Clutch 3 : Nov. 1895. Grahamstown, Cape Colony : e coll. R. H. Ivy.
3. Clutch 2 : Jan. 1905. Same locality and collection as No. 2 clutch.
4. Clutch 4 : 7.9.00. Kilgobbin, Howick, Natal : e coll. Austin Roberts.

These eggs vary very little and are much like those of *Pratincola rubicola* (European Stone Chat.)

Of rounded oval shape ; smooth and not very glossy surface.

Colour. Ground-colour a pale bluish-green. The eggs are more or less freely spotted with spots of pale rufous yellow-brown ; in some the spots are very few, in others well defined, whilst there is a slight tendency to zone at the obtuse end.

Sizes. Max. length 19·8 mm.

Min. „ 18·4 „

Max. breadth 14·7 „

Min. „ 14·0 „

307. SAXICOLA MONTICOLA (Vieill.). (Mountain Chat.)

Clutch 3 : 6.12.02. Potchefstroom, Transvaal : e coll.

Austin Roberts.

Shape oval ; texture smooth and surface dull.

Colour. Ground-colour pale green ; superficial spots and small splashes of rusty red and sub-surface markings of lilac-grey ; most of these markings are on the obtuse end and they have a tendency to zone in all three eggs.

Sizes. 23·5 × 16·0 ; 22·0 × 16·4 ; 21·5 × 16·4 mm.

[NOTE.—There are two other eggs reputed to belong to this species in the collection, one without date from Potchefstroom, and the other taken in March at Springfontein, Orange River Colony : e coll. R. H. Ivy. Although very much similar in colour to the clutch described they are so much bigger that I am inclined to doubt their identity. They measure 23·7 × 17·8 and 24·5 × 18·0 mm.]

308. *SAXICOLA PILEATA* (Gm.). (Capped Wheatear.)

1. Clutch 3 : Oct. 1905. Grahamstown, Cape Colony :
e coll. R. H. Ivy.
2. Clutch 2 : Dec. 1898. Same locality and collection.
3. One egg : Jan. 1894. Same locality and collection.

All much alike ; shape oval ; texture smooth and surface slightly glossy.

Colour. Dirty white with a yellowish-pink tinge. On one egg are a very few very small yellowish-brown pale spots.

Sizes. Max. length 27.0 mm.

„ breadth 20.4 „

Min. length 24.6 „

„ breadth 19.0 „

Mean length of 5 (the sixth is damaged and cannot be accurately measured) 25.88 ; mean breadth 19.62 mm.

313 A. *SAXICOLA FAMILIARIS GALTONI* (Strickl.). (Galton's Chat.)

Clutch 3 : 26.11.02. Potchefstroom, Transvaal : e coll. ?

Shape oval ; texture smooth ; not much gloss on surface.

Colour. Ground-colour a warm bluish-green ; surface somewhat sparingly spotted with small pale rusty brown spots, which, though scattered over the surface, are more abundant at the obtuse end ; in one egg there is a tendency for the spots to zone.

Sizes. 19.8 × 15.7 ; 20.5 × 15.8 ; 19.7 × 15.2 mm.

315. *EMARGINATA SINUATA* (Sund.). (Sickle-winged Chat.)

One egg : March. Springfontein, Orange River Colony :
e coll. R. H. Ivy.

Shape oval ; texture smooth and surface slightly glossed.

Colour. Pale greenish-blue.

Size. 20.8 × 14.9 mm.

327. *TARSIGER STELLATUS* (Vieill.). (White-starred Bush Robin.)

(Clutch 3 : 1.2.00. Kilgobbin, Natal : e coll. Austin Roberts.

Elongated oval; texture smooth and surface not highly glossed.

Colour. Ground-colour a rufous yellowish fawn-white. The shell splashed with ill-defined and semiconfluent reddish patches of varying shades, most of the markings lying at the obtuse end.

Sizes. 25.0 × 16.8; 22.6 × 16.5; 22.8 × 16.0 mm.

328. TARSIGER SILENS (Shaw). (Silent Bush Robin.)

A good many clutches.

1. Clutch 3: 22.10.02. Potchefstroom, Transvaal: e coll. Austin Roberts.
 2. Clutch 3: 26.11.02, with one egg of *Coccytes jacobinus* (Black-and-White Cuckoo). Same locality and collection.
 3. Clutch 3: 28.9.05. Grahamstown, Cape Colony: e coll. R. H. Ivy.
 4. Clutch 2: Oct. 1905.
 5. „ 2: Sept. 1899.
 6. „ 2: Dec. 1905.
- } Same locality and collection.
7. One egg: no date. Same locality and collection as clutches 1 and 2.

There is no substantial variation in these eggs.

They are of oval shape; smooth texture and a pleasant glossy though not bright surface.

Colour. The ground-colour is a very pale dirty whitish-green, and the whole shell is almost entirely covered and suffused with ill-defined and confluent superficial wash markings of a buffish light and dark brown.

Sizes. Max. length 23.3 mm.

„ breadth 19.5 „

Min. length 16.6 „

„ breadth 15.6 „

The egg of *Coccytes jacobinus* (Black-and-White Cuckoo) in clutch No. 2 is a slightly tapering oval in shape; smooth texture and bright glossy surface.

Colour. A delicate pure white.

Size. 28.0 × 21.7 mm.

342. *ALSEONAX ADUSTA* (Boie). (Dusky Flycatcher.)

(a) Clutch 2 : Dec. 1890. Grahamstown, Cape Colony :
e coll. R. H. Ivy.

Sizes. 18.1 × 14.0 mm.

18.7 × 13.9 „

(b) One egg : 20. 12. 05. Same data.

Size. 19.2 × 14.05 mm.

These eggs are of oval shape ; smooth texture, and the surface is not glossy.

Colour. Ground-colour a pale green suffused with ill-defined splashings of a rufous yellowish-brown.

The three eggs are much alike.

349. *PACHYPRORA CAPENSIS* (L.). (Cape Flycatcher.)

Four clutches.

1. Clutch 2 : March 1895. Grahamstown, Cape Colony :
e coll. R. H. Ivy.

Shape ovate ; texture smooth, with slight gloss.

Colour. Ground-colour very pale green, with over-surface markings and splashes, chiefly at the obtuse end, of pale yellow-brown ; a large number of under-surface markings and splashes of different shades of dark brown, some almost black. In one of the eggs some of the over-surface markings are large. There is a tendency for the markings to zone at the obtuse end.

Sizes. 17.9 × 13.4 ; 17.8 × 13.3 mm.

2. Clutch 2 : Dec. 1901. From same locality and collection.

Similar in shape and texture.

In one egg the ground-colour is white and there is a tendency for the spots to zone. In the second egg the ground-colour is a pale fawn. Otherwise the eggs resemble those in clutch 1.

Sizes. 17.3 × 14.0 ; 18.0 × 14.6 mm.

3. One egg : Jan. 1898. From same locality and collection.

Precisely similar to clutch 1.

Size. 18 × 14 mm.

4. Clutch 2 : 19.10.03. Waschbank, Natal : e coll. Austin Roberts.

Similar to clutch 1, but rather smaller ; sub-surface markings not so dark. Markings generally more confluent, more evenly distributed, and with less tendency to zone.

Sizes. 16.3 × 13.0 ; 16.4 × 13.0 mm.

350. PACHYPRORA MOLITOR (Hahn & Küster). (White-flanked Flycatcher.)

(Clutch 2 : 3.12.03. Balgowan, Natal : e coll. Major Sparrow.

Shape similar to *P. capensis*. Both eggs are smooth in texture with little gloss.

The two eggs vary considerably.

(a) *Size.* 18.8 × 14.4 mm. Ground-colour creamy-white ; the egg is marked with a strong central zone of over-surface markings of buff and dark red-brown and under-surface splashes of darkish grey. A few spots on other parts of the surface, but the two ends are almost clear.

(b) *Size.* 16.8 × 13.8 mm. A considerably smaller egg ; the ground-colour with a fawn tinge ; less zoning and the markings bolder and more evenly distributed.

354. TERPSIPHONE PERSPICILLATA (Sw.). (Paradise Flycatcher.)

A considerable number of eggs.

1. Clutch 4 : 14.12.99. Karkloof, Howick, Natal : e coll. Austin Roberts.
2. Clutch 2 : 8.1.05. Hennops River, Pretoria District : same collection.
3. One egg : no date. Natal : e coll. Maritzburg Museum.
4. Clutch 2 : 1899. Durban, Natal : e coll. Major Sparrow.
5. One egg : Dec. 1894. Grahamstown, Cape Colony : e coll. R. H. Ivy.
6. One egg : Mar. 1895.
7. Clutch 2 : Nov. 1892. } Same locality and collection
8. Clutch 3 : Jan. 1900. } as 5.
9. Clutch 2 : Nov. 1905. }

There is practically no variation in these eggs, except that in some the spotting is rather more thick than in others.

They are of a slightly tapering oval shape ; smooth texture and fairly glossy surface.

Colour. The ground-colour is white ; the obtuse end is spotted with dots of light brown tinged with rusty red ; the spots show a marked tendency to zone, and in one specimen form a regular cap ; a very few spots are found over the lower portion of the eggs.

Sizes. Max. length 20.6 mm.
Min. „ 18.0 „
Mean „ (18 eggs) 19.4 mm.
Max. breadth 15.0 mm.
Min. „ 14.0 „
Mean „ (18 eggs) 14.2 mm.

355. *DICRURUS AFER* (A. Licht.). (Fork-tailed Drongo.)

1. Clutch 3 : 21.11.05. Potchefstroom, Transvaal :
e coll. Austin Roberts.

Shape oval ; texture smooth ; surface glossy.

Colour. Pure white.

Sizes. 24.8 × 19.0 ; 24.8 × 19.0 ; 24.6 × 18.8 mm.

2. Clutch 3 : 16.12.99. Karkloof, Howick, Natal :
same collection.

Similar in shape and texture, but more gloss.

Colour. Ground-colour a creamy fawn, boldly splashed with superficial spots and splashes of varying shades of reddish-brown and sub-surface markings of greyish-lilac. The splashes are most numerous towards the obtuse end.

Sizes. 23.9 × 18.5 ; 24.0 × 18.0 ; 24.6 × 18.6 mm.

3. Clutch 3 : Dec. 1896. Grahamstown, Cape Colony :
e coll. R. H. Ivy.

Similar in shape, texture, and gloss, but ground-colour white with small spots—none larger than a pin's head—chiefly at obtuse end, superficially of deep brown, almost black, and where sub-surface of lilac appearance.

Sizes. 23.6 × 18.0 ; 25.4 × 19.0 ; 24.0 × 18.6 mm.

4. Clutch 3 : Oct. 1898. Same locality and collection as clutch 3.

Similar to clutch 2, but superficial splashes bolder and

light liver in colour, and under markings showing up more brown and less grey.

Sizes. 24.5 × 18.4 ; 26.6 × 19.4 ; 26.1 × 19.0 mm.

5. One egg : 24.11.00. Durban, Natal : e coll. Major Sparrow.

Similar to clutch 4, but spots rather larger.

Shape rather elongated.

Size. 27.0 × 17.8 mm.

6. Clutch 2 : Dec. 1905. Same locality and collection as clutch 3.

Similar to clutch 1. Pure white.

Sizes. 25.9 × 19.9 ; 25.0 × 18.9 mm.

7. Clutch 2 : 18.11.05. Same locality and collection as clutch 3.

Similar to clutch 4, but splashes larger and less dark. One egg much elongated.

Sizes. 27.8 × 18.5 ; 28.2 × 18.8 mm.

356. DICRURUS LUDWIGI, A. Sm. (Square-tailed Drongo.)

1. Clutch 2 : 1894. Waterberg, Transvaal : taken by P. A. Krantz.

2. Clutch 2 : 11.4.03. Durban, Natal : e coll. Austin Roberts.

I will describe the second clutch first.

Shape ovate ; texture not very smooth ; surface dull.

Colour. White ground, with fairly well distributed superficial markings of pale yellowish-brown and sub-surface markings of pale lilac-grey ; the markings incline towards the obtuse end.

Sizes. 20.8 × 16.0 ; 20.4 × 16.0 mm.

The first clutch is so very much bigger that I am inclined to be doubtful about the eggs belonging to this species. They measure 25.0 × 18.7 and 24.9 × 18.5 mm., are of a light fawn-buff ground-colour, with ill-defined under markings of a deeper shade of the same colour. They *may* be considerably faded.

491. STRIX FLAMMEA, L. (Barn Owl.)

(a) Clutch 4 : 3.4.03. Potchefstroom, Transvaal : e coll. Austin Roberts.

- (b) Clutch 2 : Dec. 1898. Grahamstown, Cape Colony :
e coll. R. H. Ivy.
(c) Clutch 6 : no date. Matabeleland : taken by C. Wilde.
(d) Clutch 3 : no date. Potchefstroom, Transvaal : taken
by N. Roberts.

Shape elongated oval ; texture fairly smooth ; surface not very glossy.

Colour. White.

- Sizes.* Max. length 42·0 mm.
Min. „ 38·9 „
Mean „ (of 15) 41·06 mm.
Max. breadth 32·6 mm.
Min. „ 30·6 „
Mean „ (of 15) 31·76 mm.

493. *ASIO CAPENSIS* (A. Sm.). (Marsh Owl.)

1. Clutch 3 : no date. Potchefstroom, Transvaal : taken
by N. Roberts.
2. Clutch 2 : 26. 4. 00. Pretoria, Transvaal : presented
by F. C. Eloff.

Shape oval ; smooth texture and not very glossy surface.

Colour. White.

Sizes. 40·0 × 35·0 ; 39·9 × 34·1 ; 40·8 × 34·8 ; 40·4 × 35·5 ;
41·0 × 35·0 mm.

496. *BUBO CAPENSIS*, A. Sm. (Cape Eagle Owl.)

1. Clutch 2 : 4. 12. 94. Grahamstown, Cape Colony :
e coll. R. H. Ivy.
2. Clutch 2 : 10. 9. 90. No locality : same collection.

Shape oval ; texture rough ; surface dull.

Colour. White.

- Sizes.* Clutch 1. 50·7 × 42·5 mm.
51·0 × 42·0 „
Clutch 2. 52·2 × 43·0 „
52·1 × 42·8 „

497. *BUBO MACULOSUS* (Vieill.). (Spotted Eagle Owl.)

Several clutches.

1. Clutch 2 : 10. 10. 03. Potchefstroom, Transvaal :
e coll. Austin Roberts.

2. Clutch 2 : Oct. 1887. Grahamstown, Cape Colony :
e coll. R. H. Ivy.
3. Ditto. : 10.9.90. Same locality and collection.
4. Ditto. : 6.10.05. Matabeleland : C. Wilde.
5. Ditto. : 15.9.03. Same locality and collector.
6. Ditto. : Oct. 1898. Pretoria, Transvaal : L. v. Blerk.
Shape a slightly tapering oval ; texture rough with slight
nodules ; a little gloss.

Sizes. Max. length 53·8 mm.

Min. „ 47·3 „

Max. breadth 43·0 „

Min. „ 40·5 „

Mean length (of 12) 50·85 mm.

„ breadth „ 42·04 „

500. *GLAUCIDIUM PERLATUM* (Vieill.). (Pearl-spotted Owl.)

Clutch 3 : 16.10.04. Pretoria : e coll. Austin Roberts.

Oval shape ; smooth texture and glossy surface.

Colour. White.

Sizes. 31·2 × 25·0 ; 30·5 × 24·3 ; 29·9 × 24·1 mm.

507. *FALCO RUFICOLLIS*, Sw. (Red-necked Falcon.)

One egg : 24.10.04. Six mile Spruit, near Pretoria,
Transvaal : e coll. Austin Roberts.

Size. 41·4 × 30·8 mm.

Shape a somewhat elongated oval ; smooth texture and slight gloss.

Colour. Ground-colour light yellowish-buff ; the whole profusely marked with evenly distributed splashes and dots of light liver and olive-brown. None of the splashings are large.

508. *TINNUNCULUS RUPICOLUS* (Daud.). (South African Kestrel.)

Several clutches, of which I describe four only, as the remaining eggs are somewhat faded and dirty.

1. Clutch 2 : Nov. 1905. Grahamstown, Cape Colony :
e coll. R. H. Ivy.

2. Clutch 3: 10.10.02. Waschbank, Natal: e coll. Austin Roberts.
3. Clutch 3: 1899. Mooi River, Natal: e coll. Major Sparrow.
4. Clutch 3: 30.9.05. Matabeleland: taken by C. Wilde.

The shape in general is a rounded, slightly tapering oval; texture smooth and surface dull.

In colour they are typical Kestrels' eggs, though in size, shape, and colouring the clutches somewhat vary.

Clutch 1 is very fresh and nice; ground-colour a light reddish buff, almost entirely covered with spots and splashes of hepatic reddish brown.

Sizes. 39.4 × 31.8; 38.9 × 32.6 mm.

Clutch 2 is larger, but otherwise similar to clutch 1. In one egg the splashings are bold.

Sizes. 38.9 × 33.4 mm.

39.8 × 33.7 „

39.0 × 33.3 „

Clutch 3 is much the same, but the shape is rather more tapering, and the colour less red and more brown in general appearance. The sizes vary a great deal: 42.3 × 32.8; 38.8 × 30.7; 41.0 × 32.5 mm.

Clutch 4 is a very pretty little clutch, very much like that of a typical *Falco asalon* (Merlin). The eggs are considerably smaller and spotted with few splashes.

Sizes. 37.0 × 30.5 mm.

37.2 × 30.6 „

37.3 × 30.9 „

509. TINNUNCULUS RUPICOLOIDES (A. Sm.). (Larger Kestrel.)

Several eggs, of which I only describe two clutches, the remaining specimens being somewhat old and faded.

1. Clutch 4: 9.10.04. Pretoria District, Transvaal: e coll. Austin Roberts.
2. Clutch 3: 20.10.03. Potchefstroom, Transvaal: same collection.

These two clutches vary somewhat in size and the depth of marking, but not in any abnormal way; they are typical Kestrels' eggs.

Shape rounded oval; texture fairly smooth; surface not glossy.

In colour the ground is whitish, but the whole surface is almost entirely covered by reddish-brown and light liver splashes, streaks, spots, smears, and wash.

In clutch 1 the smallest egg is rather lighter in colouring than the rest.

In clutch 2 the colour is generally slightly darker than in clutch 1, and in two of the eggs the heaviest markings lie towards the narrow end.

Sizes. Clutch 1. 42.7×34.7 mm.

42.9×34.4 ,,

42.8×34.0 ,,

41.4×34.0 ,,

Clutch 2. 43.6×35.5 ,,

43.0×35.0 ,,

43.0×35.6 ,,

515. *POLIOHIERAX SEMITORQUATUS* (A. Sm.). (Pigmy Falcon.)

One egg: 15.10.05. Wolmaranstad, Transvaal: e coll.
Austin Roberts.

New to science.

Shape a slightly tapering oval; texture not very smooth and surface dull.

Colour. White.

Size. 28.0×22.9 mm.

517. *AQUILA RAPAX* (Tem.). (Tawny Eagle.)

Clutch 2: 3.6.05. Wolmaranstad, Transvaal: e coll.
Austin Roberts.

Shape oval.

The two eggs vary.

(a) Texture smooth; no gloss; dirty white in colour; unspotted.

Size. 69.0×54.5 mm.

(b) Texture rougher ; surface much cleaner and chalky looking ; faint gloss.

Colour. White, with a few small but bold spots of dark reddish sepia-brown, mostly at the lower end.

Size. 69·2 × 54·0 mm.

518. *AQUILA WAHLBERGI*, Sund. (Wahlberg's Eagle.)

One egg : Oct. 1895. Pienaar's River, Pretoria District, Transvaal : taken by P. Krantz.

Shape rough rounded oval ; texture fairly smooth and surface dull.

Size. 57·5 × 48·5 mm.

Colour. Ground-colour dirty white, with splashes, particularly at obtuse end, of pale olive-brown—possibly faded.

520. *EUTOLMAËTUS SPILOGASTER*, [Dubus] Bp. (African Hawk Eagle.)

Clutch 2 : 9. 7. 04. Matabeleland : taken by C. Wilde.

Male bird shot off nest ; eggs somewhat incubated.

Shape a slightly tapering oval ; texture rough and surface dull.

Colour. Ground-colour white. In the first egg the obtuse end is thickly spotted with brown, the rest of the surface being sparsely marked with small spots, except in some places, where the spots are confluent and give a splashed appearance. In the second egg the surface is not nearly so heavily marked ; spots are chiefly at lower end, whilst over nearly the whole of the lower half there is an almost continuous under-surface wash of faint pale brown. The obtuse end is almost free from colour.

Sizes. 69·5 × 53·5 ; 69·0 × 52·7 mm.

521. *EUTOLMAËTUS BELLICOSUS* (Daud.). (Martial Eagle.)

One egg : 11. 4. 03. Rietfontein, Potchefstroom District, Transvaal : e coll. Austin Roberts.

Size. 81·0 × 65·5 mm.

Shape a rounded slightly tapering oval ; texture very rough and with slight calcareous nodules ; surface dull.

Colour. Dirty white, with faint splashes of light brown somewhat uniformly distributed.

530. *ASTURINULA MONOGRAMMICA* (Tem.). (African Buzzard Eagle.)

One egg : no date. Matabeleland : taken by C. Wilde.

In shape almost oval ; texture smooth ; surface not glossy.

Size. 41·0 × 35·0 mm.

Colour. Ground-colour dull white ; the egg is marked not very freely with evenly distributed lines, streaks, and small blotches of sepia-brown.

531. *BUTEO JAKAL* (Daud.). (Jackal Buzzard.)

One egg : no date. Mooi River, Natal : e coll. Austin Roberts.

Size. 61·0 × 48·5 mm.

Shape oval ; texture fairly smooth and surface dull.

Colour. Dirty white.

534. *MILVUS ÆGYPTIUS* (Gm.). (Yellow-billed Kite.)

1. Clutch 3 : no date, but fairly recent. Matabeleland : taken by C. Wilde.

2. Clutch 2 : same source.

In shape a slightly tapering rounded oval ; smooth texture and dull surface.

These are extraordinarily handsome eggs.

In clutch No. 1 the ground-colour is white ; in two of the three the shell is boldly splashed with fine medium brown blotches, principally, but not entirely, confined to the obtuse end ; in the third egg, considerably smaller in size, the splashing is mainly restricted to the lower end.

In clutch No. 2 the first egg is, in my opinion, the most handsome specimen of an egg which I have ever seen in any cabinet, and exceeds in beauty even those splendid examples of those of many of the *Limicolæ* so common in collections. It is grandly marked with brave splashes of magnificent dark rich brown ; in the second egg these markings are confluent and form a cap at the obtuse end. The pair form a most distinguished addition to the collection.

Sizes. Clutch 1. (a) 53.7×43.4 mm.

(b) 50.9×41.5 „

(c) 49.0×39.4 „

Clutch 2. (a) 51.6×41.8 „

(b) 54.4×42.6 „

536. ELANUS CERULEUS (Desf.). (Black - shouldered Kite.)

1. Clutch 2 : 23. 5. 05. Wolmaranstad, Transvaal : e coll. Austin Roberts.

2. Clutch 3 : 16. 11. 04. Potchefstroom, Transvaal : from same collection as clutch 1.

3. One egg : no date. Natal : presented by Field.

No. 1 clutch is extremely beautiful. In shape slightly elongated oval ; texture smooth and surface dull.

Colour. Ground-colour white. One egg is capped almost completely over its obtuse half with deep rich brownish chocolate splashes, the lower half of the egg being almost uncoloured. The second egg is similar, but the splashings, though not so numerous, are richer and darker.

Sizes. 39.5×30.8 ; 40.0×31.7 mm.

No. 2 clutch is not nearly so handsome. In the first egg there is again the capping of colour at the obtuse end, but the spots and splashes are well distributed over the lower half ; in the second egg, though the cap it still well marked, the other part of the egg has strong markings ; whilst in the third egg the markings are more evenly distributed, with the splashes chiefly at the lower half.

The colouring in this clutch is not so rich as in the former, and of a plainer brown colour.

Sizes. 39.0×31.9 ; 38.3×31.0 ; 39.6×30.0 mm.

The single egg from Natal is more like No. 1 clutch, but the splashes are not so confluent and their colour more olive-brown, possibly due to slight fading.

540. ACCIPITER RUFIVENTRIS, A. Sm. (African Sparrow Hawk.)

One egg : Oct. 1892. Grahamstown, Cape Colony : e coll. R. H. Ivy.

In shape a slightly tapering oval ; texture not very smooth ; surface dull.

Size. 39·1 × 31·5 mm.

Colour. Ground-colour dull white ; the egg is rather heavily marked, particularly towards the thinner end, with splashes of sepia and light brown.

543. *ASTUR TACHIRO* (Daud.). (African Goshawk.)

1. Clutch 3 : 13.9.06. Kilgobbin, Howick, Natal : e coll. Austin Roberts.

In shape rounded oval ; texture not very smooth ; surface dull.

Colour. Pure white.

Sizes. Max. length 44·0 mm.

Min. „ 42·9 „

Max. breadth 36·8 „

Min. „ 35·7 „

Mean length 43·4 „

„ breadth 36·2 „

2. One egg : 2.12.05. Grahamstown, Cape Colony : e coll. R. H. Ivy.

Precisely similar to No. 1, but with a faint trace of brown splashings, which are probably nest-marks.

Size. 42·3 × 36·3 mm.

553. *CIRCUS RANIVORUS* (Daud.). (South African Harrier.)

One egg : 3.10.02. Newcastle, Natal : e coll. Austin Roberts.

This egg is badly damaged and the measurement is probably not absolutely accurate.

In shape a slightly tapering oval ; texture not very smooth ; surface dull.

Colour. White.

Size. 49·5 × 38·2 mm.

555. *GYPS KOLBI* (Daud.). (Kolbe's Vulture.)

1. One egg : 20.6.04. Utrecht, Natal : e coll. Major Sparrow.

2. One egg : 5. 9. 03. Vaal River, Potchefstroom, Transvaal : e coll. Austin Roberts.

Shape almost oval ; texture rough, slightly pitted and with a few nodules ; surface dull. Typical Vultures' eggs.

Colour. The first is pure white and very clean ; the second is dirty and has a few very faint splashes, or rather large blotches, of very pale brown, possibly nest-markings.

Sizes. 88.5 × 69.0 ; 92.0 × 68.0 mm.

557. PSEUDOGYPS AFRICANUS (Salv.). (African White-backed Vulture.)

1. One egg : 5. 9. 03. Vaal River, Potchefstroom, Transvaal : e coll. Austin Roberts.

2. One egg : 15. 8. 03. Klipkuil, Transvaal : same collection.

Shape a slightly tapering oval.

The first egg is of rough texture, slightly pitted and with a few lumps or nodules ; the second is smoother. The surface in both is dull. The first is clean and pure white in colour ; the second dirty, with some greyish nest-markings giving it a dirty white appearance.

Sizes. 94.5 × 71.5 ; 96.0 × 74.5 mm.

558. OTOGYPS AURICULARIS (Daud.). (Black Vulture.)

- One egg : 19. 7. 03. Machavie, Potchefstroom, Transvaal : e coll. Austin Roberts.

Shape slightly tapering rounded oval ; texture rough and pitted ; surface dull.

Colour. Dirty white, with a few splashes of pale brown.

Size. 96 × 72 mm.

There is another egg, the data of which I was unable to find, in the Museum, but which I think is of this species. The egg is marked 188. It is very similar to the above, but the splashes are towards the lower end. It measures 95 × 72 mm.

563. SERPENTARIUS SECRETARIUS (Scop.). (Secretary Bird.)

1. One egg : no date. Potchefstroom, Transvaal : e coll. Austin Roberts.

2. One egg : no date. Same locality and collection.

The eggs differ in shape and size. No. 1 is oval with little taper, but No. 2 tapers very considerably.

Texture rough, slightly pitted and with some nodules ; surface dull.

Colour. Pure white.

Sizes. 76·5 × 62·5 ; 80·0 × 59·5 mm.

XII.—*Some Notes on the Wildfowl and Water-Birds of Matatiele, East Griqualand.* By C. G. DAVIES, C.M. Riflemen.

THE following birds, with the exceptions noted, were collected during the period from July 1898 to October 1899. My thanks are due to Dr. J. E. Duerden, of the Albany Museum, Grahamstown, for furnishing me with information *re* certain birds sent to the Museum by Mr. Gould, of Matatiele, and also for kindly forwarding me specimens of others for examination.

Matatiele is situated on the high veld, about 35 miles from the town of Kokstad, and about 20 miles from the Drakensburg Range and the Basutoland border. To the east of the village the country is fairly flat, these flats being intersected by low rocky ridges, at the bases of which lie a series of vleis which have for years been a favourite haunt of Wildfowl, but which for some reason are unfortunately gradually becoming dried up, and I hear at the present time contain few fowl compared with past years.

1. *CICONIA NIGRA.* Black Stork.

Rare. A beautiful adult male was shot by a friend of mine; its crop was crammed with tadpoles in all stages of growth.

2. *PSEUDOTANTALUS IBIS.* Wood Ibis.

Very rare. Mr. Gould, of Matatiele, obtained a specimen of this species. I have no particulars as to sex, &c., as this

specimen was not retained by the Albany Museum, owing to its not being well preserved.

3. SCOPUS UMBRETTA. Hammerkop.
Very common.

4. ARDEA CINEREA. Grey Heron.
Not common.

5. ARDEA MELANOCEPHALA. Black-headed Heron.
Not uncommon.

6. ARDEA PURPUREA. Purple Heron.
Not common.

7. HERODIAS BRACHYRHYNCHA. Yellow-billed Egret.
Scarce. Two or three specimens were shot. My only date is that of an adult ♂ shot on 28.7.98.

8. NYCTICORAX GRISEUS. Night Heron.
This species was very common on one large vlei, in which there was a large reed-bed. I believe they bred there, as birds in young plumage were often seen.

9. BOTAURUS CAPENSIS. Cape Bittern.
Not uncommon.

10. IBIS ÆTHIOPICA. Sacred Ibis.
Fairly common; specimens of both adult and immature birds were secured. They often assembled in large flocks and were very wild.

11. GERONTICUS CALVUS. Bald Ibis.
Scarce. Only one specimen was secured. Adult ♂,
11.9.99.

12. PLEGADIS FALCINELLUS. Glossy Ibis.
Very rare. A specimen of this rare Ibis was sent to the Albany Museum by Mr. Gould, but was not kept as it was not well preserved. I have no particulars as to date, &c.

13. PLATALEA ALBA. African Spoonbill.

Scarce. Two specimens were shot on 8.1.99. These were probably immature birds, as they had the naked skin of the face more restricted than in adults; they had no crests, and the legs and feet were black with a pink band just below the feathers of the thigh. They were feeding in company with *Ibis athiopica*, and stepping along quickly in shallow water, moving the bill rapidly from side to side.

14. PLECTROPTERUS NIGER. Black Spurwing Goose.

Not uncommon. All the specimens shot were apparently referable to this species, as they showed very little white on the face or breast. A large adult ♂ shot on 1.7.98 only had a few flecks of white on the face and a small patch on the lower breast. They used to occur in flocks, haunting the vleis during the daytime, and going out to feed on the native land in the early morning and evening.

15. DENDROCYCNA VIDUATA. White-faced Duck.

Very rare. Two specimens of this Duck were shot by Mr. Gould, and forwarded to the Albany Museum in July 1905. Dr. Duerden has kindly allowed me to examine these specimens; they are both adults in good plumage, and agree well with measurements in Stark and Selater. They were not sexed, and there is nothing to show to what sex they belong, as their measurements are exactly the same, the only difference being that in one specimen the white on the crown extends further back than in the other; this specimen also has the white patch on the centre of the neck joined to that of the face by a narrow line of scattered white feathers. This is, as far as I know, the first noted occurrence of this species in Cape Colony.

16. CASARCA CANA. S. African Shelduck.

Scarce. A pair were seen but not secured.

17. ANAS UNDULATA. Yellow-billed Duck.

Very common.

18. ANAS SPARSA. Black Duck.

Scarce. Only found on the streams.

19. *NETTION PUNCTATUS.* Hottentot Teal.

Rare. Only one specimen seen and secured. Adult ♂,
25. 1. 99.

20. *PECILONETTA ERYTHORHYNCHA.* Red-billed Teal.

Fairly common. Seen in small flocks.

21. *SPATULA CAPENSIS.* Cape Shoveller.

Scarce. A pair shot on 18. 11. 98.

22. *NYROCA ERYTHROPHALMA.* S. African Pochard.

Not common, but one or two were generally to be found on the vleis. They have a swift flight and when on the wing look quite black, the white bar on the speculum showing up very strongly.

♂ adult, 19. 8. 98.

♀ „ 7. 10. 98.

23. *THALASSORNIS LEUCONOTUS.* White-backed Duck.

Not common, but several were shot. Although preferring to escape by diving, they fly well and strongly.

♂ and ♀ adult, shot 18. 8. 98.

24. *ERISMATURA MACCOA.* Maccoa Duck.

Scarce. Only two specimens were shot. I noticed that when swimming they hold their long stiff tails almost upright—at right angles to the body,—giving rather a curious effect. Like the previous species, they are great divers and fly well.

♂ adult, 18. 10. 98.

♀ „ 15. 9. 99.

25. *ORTYGOMETRA PUSILLA.* Baillon's Crake.

Not common.

26. *GALLINULA CHLOROPUS.* Moorhen.

Not common.

27. *PORPHYRIO MADAGASCARIENSIS.* King Reedhen.

Scarce. A pair were secured on the 30. 7. 98. They have a slow weak flight and are hard to flush.

28. *FULICA CRISTATA.* Red-knobbed Coot.

Very common ; in large flocks.

29. *BUGERANUS CARUNCULATUS*. Wattled Crane.

Not common. Generally in pairs; but I once saw a flock of about 20.

30. *ANTHROPOIDES PARADISEA*. Blue Crane.

Very common during the winter. They used to frequent the flats during the day in large flocks, when they were very wild. We found that they roosted in one of the vleis, where we used to wait for them at sunset, when they would come quite close and give easy shots. The young birds were good eating.

31. *BALEARICA REGULORUM*. Crowned Crane.

Fairly common in winter, generally seen in flocks and often associating with the previous species. They used to roost in the same vlei.

32. *CURSORIUS RUFUS*. Burchell's Courser.

Not common, but resident; frequenting the flats. I once saw a wonderful instance of the female's bravery in defence of her eggs. We were on parade, and while trotting in line we saw a Courser standing facing us, flapping her wings; the whole line went right over her; it is wonderful that the bird was not killed and the eggs smashed, but I am glad to say that both escaped, as I went back to look after parade, and found the bird sitting peacefully, as if nothing had occurred. The eggs were probably on the point of hatching.

33. *ARENARIA INTERPRES*. Turnstone.

Rare. One specimen shot, adult ♀, in non-breeding plumage, 21. 10. 98.

34. *ÆGIALITIS TRICOLLARIS*. Three-banded Plover.

Not common.

35. *NUMENIUS AQUATUS*. Curlew.

Scarce. Only one specimen seen and secured, 10. 11. 99, adult ♀.

36. *TOTANUS NEBULARIUS*. Greenshank.

Not common. A few pass through on migration.

Adult ♂, 22. 10. 99.



Photo by E. C. Chubb.

NEST OF PETERS' FINFOOT (*Podica petersi*).

37. TOTANUS GLAREOLA. Wood Sandpiper.
Scarce.
38. TOTANUS HYPOLEUCUS. Common Sandpiper.
Not uncommon during summer.
39. PAVONCELLA PUGNAX. Ruff.
A few seen on migration, November 1898.
40. GALLINAGO MEDIA. Double Swift.
Not common.
41. GALLINAGO NIGRIPENNIS. Ethiopian Snipe.
Commoner than the previous species.
42. HYDROCHELIDON HYBRIDA. Whiskered Tern.
Rare. One specimen in non-breeding plumage, 17. 10. 98,
the only one seen.
43. PODICIPES CRISTATUS. Crested Grebe.
Not uncommon. Found generally on the open vleis.
Adult ♂ in breeding-plumage, 16. 7. 98.
44. PODICIPES CAPENSIS. Cape Dabchick.
Very common.
-

XIII. (a).—*On the Nesting of Podica petersi, Hartl. (Peters' Finfoot) in Southern Rhodesia.* By ERNEST C. CHUBB, F.Z.S.

(Plate V.)

A FRESHLY killed female and two eggs of this species, whose nesting-habits have not hitherto been recorded, have lately been presented to the Rhodesia Museum by Mr. H. Burrows. He obtained them at the Umguza River, about 9 miles east of Bulawayo, on Jan. 19th. The hen was sitting on the nest asleep, with her head reclining on her back, when Mr. Burrows first saw her, from the opposite bank. He then walked a short distance down the river and crossed over to examine the nest, and as he approached the spot the splash of a bird entering the water was heard, which he thinks must have been the male, that had been sitting on a

branch close to the nest. The female then dived straight off the nest into the water, and was seen swimming on the surface (not with its body submerged, as is stated to be its usual manner by some writers), with its head performing a constant backward and forward motion; no doubt, keeping time with its feet as it paddled along.

I visited the spot on Jan. 25th and took the accompanying photograph. The nest was found to be a very rough structure of dried reeds and coarse grass, lined with a few leaves. It was very shallow, almost flat, and measured 11 inches in diameter, being formed on the top of a large mass of dried reeds, which had been washed down by the river when in flood, and had been left attached to the branch of a tree overhanging the water. It was about 6 feet above the surface when Mr. Burrows first saw it, but when I was there it was about 5 feet, the water having risen in the meantime.

The eggs, two in number, are of a drab ground-colour, with splashings of reddish-brown, these being^a very much thicker at the broader end. They measure $2\cdot05 \times 1\cdot6$ inches = 52×41 millimetres.

The stomach of the female, on examination, was found to contain the remains of frogs.

XIII. (b).—*On Birds collected and observed at the Khami River, Matabeleland.* By ERNEST C. CHUBB, F.Z.S.

THE following list of birds is based upon a few skins collected by Mr. Richard Douglas and myself during a week's stay at the Ancient Ruins on the Khami River, about 11 miles west of Bulawayo, in Oct. 1907.

It includes the rare Mozambique Shrike (*Dryoscopus mossambicus*); while *Caprimulgus trimaculatus* is recorded from Southern Rhodesia for the second time, having recently been obtained by Mr. C. F. M. Swynnerton in Gazaland*. Similarly with regard to *Aquila rapax*, Mr. Swynnerton was the first to record the occurrence of this species in Southern Rhodesia.

* See 'Ibis,' 1907, p. 281.

The number in square brackets after a species is the number of that bird in Stark and Selater's 'Birds of South Africa.'

1. LAMPROCOLIUS PHENICOPTERUS BISPECULARIS (Strickl.) (Lesser Red-shouldered Glossy Starling.) [15.]

Three or four together were observed flying over the road between Bulawayo and the Khami River, on Oct. 20th.

2. CINNYRICINCLUS LEUCOGASTER VERREAUXI (Boc.) (Plum-coloured Starling.) [19.]

One individual seen between Bulawayo and the Khami River on Oct. 27th.

3. ANTHUS PYRRHONOTUS (Vieill.) (Cinnamon-backed Pipit.) [144.]

a. ♀. 26 Oct.

4. CINNYRIS LEUCOGASTER, Vieill. (South African White-breasted Sunbird.) [159.]

A few seen in some bushes near the river.

5. DRYOSCOPUS MOSSAMBICUS, Finsch & Reichen. (Mozambique Shrike.) [198.]

a. ♂. 21 Oct. Shot in the trees on the river-bank. Ants and beetles in stomach.

Iris dark reddish-brown; legs and feet dark grey; bill black.

6. LANIARIUS SULPHUREIPECTUS (Less.) (Orange-breasted Bush Shrike.) [205.]

a. ♂. 21 Oct.

Hymenopterous insects in stomach.

7. CRATEROPUS JARDINII, Smith. (Jardine's Babbler.) [212.]

a. ♂. 21 Oct.

Insects in stomach. Very common. They were seen in numbers on the trees close to the river-bank, and were making a great chattering noise.

8. PYCNONOTUS LAYARDI, Gurney. (Black-capped Bulbul.) [219.]

a. ♂. 21 Oct.

9. *CISTICOLA ABERRANS* (Smith). (Smith's Grass Warbler.) [273.]

a. ♂. 21 Oct.

10. *TERPSIPHONE PERSPICILLATA* (Swains.). (Paradise Flycatcher.) [354.]

One or two individuals observed singly in some trees on the river-bank on Oct. 27th.

11. *DICRURUS AFER* (Licht.). (Fork-tailed Drongo.) [355.]

I saw one of these birds taking a bath one morning. It flew down to the water from a tree overhanging the river, and, fluttering just under the surface for a few seconds, rose to another tree close by: in this way performing a semi-circle in flight, the lowest portion of the arc just touching the water. This was repeated several times.

12. *HIRUNDO RUSTICA*, Linn. (European Swallow.) [367.]

3 ♂, 2 ♀. 26 Oct. These birds were shot while flying after insects around a grass-fire.

13. *HIRUNDO SEMIRUF A*, Sund. (Rufous-breasted Swallow.) [376.]

a. ♂. 26 Oct.

b. ♀. ..

14. *CAPRIMULGUS TRIMACULATUS* (Swains.). (Freckled Nightjar.) [396.]

One example obtained on the 22nd Oct.

15. *MEROPS APIASTER*, Linn. (European Bee-eater.) [405.]

A number were seen on Oct. 21st circling overhead in their usual manner, close to the river.

16. *CERYLE RUDIS* (Linn.). (Pied Kingfisher.) [412.]

A pair observed flying low down along the river on Oct. 20th.

17. *CORYTHORNIS CYANOSTIGMA* (Rüpp.). (Malachite Kingfisher.) [415.]

a. ♂ imm. 28 Oct.

Fairly common, several observed.

In this young bird the bill is a much lighter red than in the adult, and considerably shorter, the culmen measuring .95 inch. The crest is absent, the feathers on the crown being similar to those of the back—ultramarine-blue, but with black tips. The white patches behind the ear-coverts present in adults are replaced by a collar of buffish feathers tipped with delicate violet, and continuous with the ear-coverts and cheeks. The reddish-buff of the under surface is slightly paler than in adult birds.

It is difficult to believe that the gorgeous coloration of this species is protective; but yet, when it is perched about forty feet distant, amongst the branches of a tree, and not in direct sunlight, it appears very indistinct and difficult to locate. All that can be seen is an indefinite patch of colour, slightly bluer than the surroundings. The white throat and sides of head and the bright reddish-buff of the cheeks and under surface are quite invisible.

18. *PŒOCEPHALUS MEYERI* (Cretzsch.). (Meyer's Parrot.) [487.]

One specimen obtained, 28th Oct.

19. *AQUILA RAPAX* (Temm.). (Tawny Eagle.) [517.]

a. ♂. 20 Oct. This bird was shot while sitting on the top of a tall tree in bush-country, near the Khami River.

20. *SCOPUS UMBRETTA*, Gmel. (Hammerhead.) [584.]

An individual was observed gathering sticks for its nest on some rocks near the water's edge.

It kept darting its head forward as it raked amongst the driftwood for suitable sticks, and at each forward movement of the head it uttered a sharp shrill cry.

21. *BUTORIDES ATRICAPILLA* (Afzel.). (Green-backed Heron.) [597.]

a. ♀ imm. 26 Oct.

22. *TOTANUS HYPOLEUCUS* (Linn.). (Common Sandpiper.) [744.]

a. ♂. 28 Oct.

Water-beetles in stomach.

XIII. (c).—*On Birds collected in Northern Matabeleland.* By ERNEST C. CHUBB, F.Z.S., Assistant Curator Rhodesia Museum.

THE 77 examples enumerated in this paper were collected by myself during November 1907, while travelling between Bulawayo and the Kana River, in search of specimens for the Rhodesia Museum. The route followed was *via* Inyati, and from there in a N.N.W. direction, crossing the Shangani River just above where the Gwelo flows into it, and reaching the Kana about on the 28th meridian.

The geological formation of the country from about 30 miles north of Inyati is chiefly Forest Sandstone, which is covered with guzo, magonde or matjabele, and mapani forests. They derive their names from the principal trees in them. In the case of the mapani forests, they are often composed entirely of that tree, and are usually found in more low-lying gravelly soils. The magonde forests also usually lie lower than the guzos, and are frequently met with on the edges of the guzos and bordering the large open vleis which are met with every now and again, generally with a river or stream running through them.

The recently described *Poliospiza mennelli* was secured during this trip, and *Estrilda subflava*, *Bradypterus babacula*, and *Thalassornis leuconota* were obtained for the first time in Southern Rhodesia.

My thanks are due to Mr. H. De Laessoe, who kindly arranged for me to join the expedition and assisted me in securing specimens, and also to Mr. F. P. Mennell for a contribution towards the expenses.

References are given to Stark and Selater's *Birds of South Africa* by the species number in that work being enclosed in square brackets.

1. *Lamprocolius phainopterus bispecularis* (Strickl.).
Lesser Red-winged Glossy Starling. [15.]

a. ♀ juv. Hunda's near Tokwe River, 2 Dec.

b. Juv. " " " " 3 Dec.

2. *Oriolus galbula*, Linn. Golden Oriole. [20.]

a. Imm. Kana River, 17 Nov.

The throat and breast of this specimen is grey streaked with black; the bill is black, and the feet are bluish-grey.

3. *Oriolus larvatus*, Licht. Black-headed Oriole. [22.]

a. Imm. Gwelo River, 24 Nov.

4. *Hyphantornis velatus* (Vicill.). Masked Weaver Bird. [25.]

a. ♂. Indabambi's, Shangani River, 11 Nov.

Several completed nests of this bird, attached to reeds overhanging the water, were examined, but they contained no eggs.

5. *Anaplectes rubriceps* (Sund.). Red-headed Weaver Bird. [36.]

a. ♀. Kana River, 17 Nov.

b. ♂. Swena's, Gwamayaya River, 23 Nov.

c. ♀. " " " "

Colcopterous, Hymenopterous, and Dipterous insects in stomach. The female obtained at the Kana River was shot as it left the nest. This was built of "Gonda" twigs and lined with leaves, being shaped in the usual manner. It was suspended from the end of a thin branch of an acacia tree about 25 feet from the ground and contained three eggs.

The Gwamayaya River specimens are a pair, and were also shot at the nest. This nest was built of similar twigs to the former, but of an abnormal shape. In addition to the long vertical passage opening into the underside, there were two short blind passages at opposite sides on the top of the nest. It contained two half-incubated eggs.

6. *Estrilda astrilda* (Linn.). Common Waxbill. [52.]

a. ♂. Kana River, 18 Nov.

Shot among reeds in river-bed; there were about 15 or 20 together.—Small seeds in stomach.

7. *Estrilda subflava* (Vicill.). Orange-breasted Waxbill. [57.]

a. ♀. Gonye's, Shangani River, 10 Nov.

8. *Pyromelana capensis xanthomelana* (Rüpp.). Black-thighed Bishop Bird. [71.]

a. Indabambi's, Shangani River, 11 Nov.

This is a male in changing plumage.

9. *Coliopasser ardens* (Bodd.). Red-collared Widow Bird. [76.]

a. ♀. Indabambi's, Shangani River, 11 Nov.

b. ♀. Kana River, 18 Nov. This example was shot among reeds in the river-bed; there were about 30 or 40 together.—Remains of insects in stomach.

10. *Petronia petronella* (Gray). Diamond Sparrow. [83.]

a. ♂ imm. Gwamayaya River, 21 Nov. In guzo forest.—Insects in stomach.

Bill brown; legs and feet bluish-grey; iris brown.

11. *Poliospiza mennelli*, Chubb. Shangani Seed-eater. [Bull. Brit. Ornith. Club, No. cxl, vol. xxi. p. 62, 1908.]

a. ♂. Tjoko's, Shangani River, 8 Nov.

This species differs from *P. gularis*, the common South African member of the genus, in being more greyish above; the crown black, with broad white streaks; sides of the face and ear-coverts uniform black; below white, with streaks of ashy-brown on the throat, breast, and flanks; abdomen and under tail-coverts white; and the axillaries and under wing-coverts ashy-white.

Total length 5·0 inches, culmen 0·5, wing 3·15, tail 2·0, tarsus 0·55. (Type in Rhodesia Museum.)

12. *Fringillaria tahapisi* (Smith). Rock Bunting. [104.]

a. ♂. Gwelo River, 24 Nov. In guzo forest.—Insects in stomach. In this example the feathers of the back of the crown are all edged with white.

13. *Parus niger*, Bonn. & Vieill. Black Tit. [179.]

a. ♀. Indabambi's, Shangani River, 11 Nov.

b. ♂. Kana River, 19 Nov.

c. ♀. Gwelo River, 24 Nov.

Specimen *a* was shot while it was sitting alone on a tree near the water. Those from the Kana and Gwelo were killed in the forests when in company with four or five others. The Kana River birds were on some trees near a swarm of young locusts.

14. *Urolestes melanoleucus* (Jardine & Selby). Long-tailed Shrike. [183.]

a. ♀. Gonye's, Shangani River, 10 Nov.

b. ♀. Gwelo River, 24 Nov.

c. ♀. Indabambi's, Shangani River, 26 Nov.

15. *Lanius minor*, Gmel. Lesser Grey Shrike. [186.]

a. ♀. Indabambi's, Shangani River, 26 Nov.

16. *Lanius collurio*, Linn. Red-backed Shrike. [187.]

a. Indabambi's, Shangani River, 11 Nov. Shot near water.—Beetles in stomach.

b. ♀ juv. Indabambi's, Shangani River, 26 Nov.

17. *Nilais brubru* (Lath.). Brubru Shrike. [189.]

a. ♀. Swena's, Gwamayaya River, 23 Nov.

In mapani bush.—Insects, chiefly coleopterous, in stomach.

18. *Prionops talacoma*, Smith. Smith's Helmet Shrike. [211.]

a. ♀. Kana River, 19 Nov.

b. ♂. Gwamayaya River, 21 Nov.

The bird obtained at the Kana River was one of a pair.—Beetles, locusts, and ants in stomach.

19. *Crateropus jardinii*, Smith. Jardine's Babbler. [212.]

a. ♀. Kana River, 20 Nov.—Ants and beetles in stomach.

20. *Pycnonotus layardi*, Gurney. Black-capped Bulbul. [219.]

a. ♂. Indabambi's, Shangani River, 26 Nov.

21. *Sylvia simplex*, Lath. Garden Warbler. [233.]

a. ♂. Kana River, 20 Nov.—Beetles and ants in stomach.

22. *Phylloscopus trochilus* (Linn.). Willow-Wren. [234.]
 a. ♂. Gwamayaya River, 13 Nov.
 b. ♂. " " 23 Nov.
 c. ♀. " " " "
 In mixed mapani forest.—Small beetles and other insects in stomach.
23. *Bradlypterus babacula* (Vieill.). Babbling Reed-Warbler. [246.]
 a. ♀. Kana River, 17 Nov.
 Shot among reeds in river.—Insects, ants, &c. in stomach.
24. *Eremomela scotops*, Sund. Dusky-faced Bush Warbler. [252.]
 a. ♀. Kana River, 17 Nov.
25. *Cisticola aberrans* (Smith). Smith's Grass Warbler. [273.]
 a. ♂. Tjoko's, Shangani River, 9 Nov.
26. *Turdus libonianus* (Smith). Kurrichane Thrush. [298.]
 a. Hunda's, Tokwe River, 2 Dec.
 Bill orange; legs and feet yellowish-brown; iris brown.
27. *Thamnolaea arnotti* (Tristr.). Arnott's Bush-Chat. [319.]
 a. ♀. Gonye's, Shangani River, 9 Nov.
 Bill black; legs and feet black; iris dark brown.
 This example has no trace of the white on the forehead, said by Selater and Stark to be present in females.
28. *Bradyornis mariquensis*, Smith. Mariquæ Flycatcher. [338.]
 a. ♀ imm. Indabambi's, Shangani River, 11 Nov.—Flies in stomach.
 b. ♂ imm. Gwamayaya River, 21 Nov.
29. *Pachyprora molitor* (Hahn & Küster). White-flanked Flycatcher. [350.]
 a. ♀. Gwamayaya River, 21 Nov.
 b. ♂. Gwelo River, 24 Nov.
 c. ♀. " " " "

Various insects in stomach. A very fearless little bird; it will allow an approach to within a few feet of it ere taking flight.

30. *Terpsiphone perspicillata* (Swains.). Paradise Flycatcher. [354.]

a. ♂. Gwamayaya River, 13 Nov.

b. ♂ imm. „ „ „

Beetles, flies, &c. found in stomach. The lengthened tail-feathers of the immature ♂ measure 3.9 inches.

31. *Dicrurus afer* (Licht.). Fork-tailed Drongo. [355.]

a. Juv. Kana River, 17 Nov.

In this young specimen all the feathers are narrowly tipped with buff, and the edge of the wing is white.

32. *Graucalus pectoralis*, Jard. & Selby. Black-chested Cuckoo Shrike. [359.]

a. ♀. Gonye's, Shangani River, 9 Nov.

b. ♂. Kana River, 14 Nov.

Young locusts in stomach.

33. *Rhinopomastus cyanomelas* (Vieill.). Scimitar-bill. [384.]

a. ♂. Gwelo River, 24 Nov.

A pair observed together. There are three pairs of white-tipped tail-feathers in this individual.

34. *Cosmetornis vexillarius* (Gould). Standard-wing Nightjar. [399.]

a. ? Between Inyati and Shangani River, 4 Nov.

b. ♂. Tokwe River, 1 Dec.

A female and four males, of which this is one, all with lengthened wing-feathers, were seen together. Several other males were seen at different times.

35. *Coracias garrulus*, Linn. European Roller. [400.]

a. ♀. Near Gwelo River, 24 Nov.

A large quantity of flying termites in stomach. Numbers were seen flying overhead, some of which settled on the tops of trees.

36. *Merops nubicoides*, De Murs & Pucheran. Carmine-throated Bee-eater. [408.]

Seen flying in company with the European species (*M. apiaster*), and settling on the tops of bushes together, at a vlei near Gonye's, Shangani River, 29th Nov.

37. *Dicrocerus hirundineus* (Licht.). Swallow-tailed Bee-eater. [409.]

a. ♀. Near Tokwe River, 2 Dec.

Hymenopterous insects found in stomach.

38. *Melittophagus meridionalis*, Sharpe. Little Bee-eater. [410.]

a. ♂. Indabambi's, Shangani River, 11 Nov.

b. ♀. " " " "

Shot while it was sitting on reeds at edge of pool.—Beetles and ants found in stomach.

39. *Ceryle rudis* (Linn.). Pied Kingfisher. [412.]

Seen at pools near Indabambi's, Shangani River, 10th Nov.

40. *Bucorax cafer*, Bocage. Ground Hornbill. [426.]

Saw about a dozen together near Indabambi's, Shangani River, 10th Nov.

A group of three was met with at the Kana River, 15th Nov.

Evidently fairly common, for, besides those actually seen, their cries were constantly heard during our travelling in the Shangani River region.

41. *Lophoceros leucomelas* (Licht.). Yellow-billed Hornbill. [433.]

a. ♂. Kana River, 19 Nov,

b. Gonde's, Gwampa River, 3 Dec.

Insects of various kinds in stomach.

42. *Dendropicus cardinalis* (Gmel.). Cardinal Woodpecker. [440.]

a. ♀. Gwamayaya River, 13 Nov.

b. Tokwe River, 1 Dec.

43. *Indicator sparrmani*, Steph. Sparrman's Honey-Guide. [444.]

- a. ♂. Tjoko's, Shangani River, 9 Nov.
- b. ♂. Gonye's, Shangani River, 10 Nov.
- c. ♀. Gwamayaya River, 13 Nov.

Common in this district, for its importunate calling was frequently heard.

44. *Trachyphonus cafer* (Vieill.). Crested Barbet. [458.]

- a. ♀. Tjoko's, Shangani River, 9 Nov.
- Large green berries in stomach.

45. *Chrysococcyx klaasi* (Steph.). Klaas' Cuckoo. [465.]

- a. ♂. Kana River, 20 Nov.
- Ants, young locusts, and small yellow seeds in stomach.

46. *Milvus ægyptius* (Gmel.). Yellow-billed Kite. [534.]

- a. 40 miles N. of Inyati, 3 Nov.
- b. ♂. Kana River, 17 Nov.

Numbers of these birds were generally to be seen following the meat-laden waggon while trekking, and circling round the camp when we were outspanned, evidently attracted by the meat which was hung out to dry. I have seen them approach to within a few feet of me. It is then that one notices their extremely graceful flight; and their circling and sweeping movements in the air resemble very much those of Sea-Gulls.

47. *Serpentarius secretarius* (Sparrm.). Secretary Bird. [563.]

Two were seen on October 31st, about 14 miles N.E. of Bulawayo.

48. *Ciconia alba*, Gurney. White Stork. [578.]

- a. ♂. Between Indabambi's and Gonye's, Shangani River, 26 Nov.
- b. ♀. Between Indabambi's and Gonye's, Shangani River, 26 Nov.

Young locusts in stomach. A few were met with at Indabambi's on 10th Nov., but as we passed there on our

return journey on 24th Nov. they were to be seen in large flocks, numbering thousands.

49. *Ciconia nigra* (Linn.). Black Stork. [579.]

A pair was seen feeding in the vlei near Indabambi's, Shangani River, on 10th Nov.

50. *Herodias alba* (Linn.). Great White Egret. [589.]

I saw one in a vlei near Gonye's, Shangani River, on the 29th Nov. It was extremely wary and difficult to approach.

51. *Herodias garzetta* (Linn.). Little Egret. [591.]

One or two seen singly at Indabambi's, Shangani River, on the 10th Nov.

52. *Plectropterus gambensis* (Linn.). Spur-wing Goose. [611.]

Four were seen feeding with Crowned Cranes (*Balearica regulorum*) at Indabambi's, Shangani River, on the 11th Nov. Several were also met with in a vlei near Gonye's, Shangani River, on the 29th Nov.

53. *Sarcidiornis melanonota* (Penn.). Knob-billed Duck. [613.]

a. ♂. Shangani River, near Indabambi's, 25 Nov.

Shot while swimming with six half-grown ones.

54. *Thalassornis leuconota* (Smith). White-backed Duck. [627.]

a. ♀. Kana River, 15 Nov.

55. *Turtur capicola* (Sundev.). Cape Turtle Dove. [636.]

a. ♂. Kana River, 14 Nov.

b. ♂. Gwelo River, 24 Nov.

56. *Pternistes swainsoni* (Smith). Swainson's Francolin. [659.]

Fairly common everywhere.

57. *Numida coronata*, Gray. Common Guinea Fowl. [663.]

Very common. Their calling was frequently heard throughout the trip.

58. *Limnocorax niger* (Gmel.). Black Crake. [680.]

a. ♀. Kana River, 15 Nov.

Small seeds of several different kinds in stomach.

59. *Gallinula angulata*, Sund. Lesser Moorhen. [682.]

a. ♂. Kana River, 15 Nov.

60. *Balearica regulorum* (Bennett). Crowned Crane. [689.]

About half a dozen were seen feeding in company with Spur-winged Geese (*Plectropterus gambensis*) at Indabambi's, Shangani River, 11 Nov.

61. *Actophilus africanus* (Gmel.). African Jacana. [713.]

a. ♀. Kana River, 17 Nov.

Seeds and flies in stomach.

I observed this bird on several different occasions before it was shot. It was living in a pool on the almost dried-up river, and each time I approached the spot the bird ran over the water-lilies and other plants in its characteristic manner, and took refuge in some thick reeds at the edge of the pool, keeping up a constant clicking noise the whole time I remained near.

62. *Stephanibyx coronatus* (Bodd.). Crowned Lapwing. [720.]

Seen at Indabambi's on the 10th and also on the Kana River, where it is quite common; but it is very wary, and one finds it extremely difficult to get within gunshot range.

63. *Totanus glareola* (Linn.). Wood Sandpiper. [741.]

a. ♀. Kana River, 14 Nov.

64. *Podiceps capensis*, Licht. Cape Debelick. [811.]

a. Kana River, 15 Nov.

65. *Struthio australis*, Gurney. Southern Ostrich. [814.]

A male and two females were seen by Mr. Clarke, a member of the party, at the Kana River on Nov. 15th, and one of the females dropped an egg as it ran away.

XIV.—Occasional Notes.

VIII. LETTER FROM CYPRUS.

THE following letter to Haagner will interest the Members of the Union :—

“ I promised to send you a letter for the Journal giving a little account of my new home and its Birds, and as I have now visited all the districts in the island I am taking the first opportunity of letting you have a few remarks.

“ First of all, Cyprus lies in between $34^{\circ} 33'$ and $35^{\circ} 41'$ north latitude and $32^{\circ} 20'$ and $34^{\circ} 35'$ east longitude. Its greatest length is 140 and its greatest breadth 60 miles. It is the third largest island in the Mediterranean, and its nearest point to Africa is about 250 miles from Port Said in Egypt. Its area is 3584 square miles. Geographically it may be looked at as a broad island, half mountain and half plain, the mountains consisting of a northern and southern range running right across the island from east to west, parallel with each other and forming the boundaries of a large central plain some 70 miles long by 15 to 20 broad. To the north of the northern range lies a narrow strip of land, perhaps 4 miles deep, running to the sea, whilst to the south of the southern range the land falls more slowly away through long undulating foothills to the southern littoral.

“ The northern mountains rise only to 3150 feet, but the southern chain—on which I spent nearly three months—is magnificent country, its topmost peak 6400 feet above sea-level. This southern range is well wooded with coniferous and other trees, the *Pinus pinaster*, *Pinus laricio*, *Quercus alniifolia*, and *Arbutus andrachne* being most conspicuous.

“ The island is on the whole very fertile and rather closely cultivated, although in the main in rather rude fashion. About 1700 sq. miles are under direct cultivation and about 700 sq. miles are forest ; about 700 sq. miles are rocky land not capable of cultivation, whilst the remainder is probably capable of being dealt with remuneratively under some form of agriculture.

“ There are a good many streams, nearly all of which, how-

ever, are more or less dry in the summer months—the non-rainy season. The population is about a quarter of a million, of which two-thirds are Greeks and one-third Turks. The chief crops are barley, wheat, oats, vetches, carobs (a tree of peculiar character which bears a bean-like fruit in a long pod), grapes, olives, cotton, sesame, hemp, and aniseed, and there is a large export trade in wine and brandy. Near the south and east coasts are some large brackish lakes.

“So much for the place.

“There has not been a great deal of systematic work done on the Ornithology of Cyprus. The late Lord Lilford visited the island more than 20 years ago and employed a Mr. Pearse as a collector for some time; but the first important contribution to the knowledge of the avifauna of the island came from the researches of Dr. F. H. H. Guillemard, who paid two extended visits to Cyprus about 1888, under the direction and patronage of Lord Lilford, the results of which were published in the ‘Ibis’ in about 1888 and 1889. He enumerated 231 species as occurring in the island. Since his visits the only work of importance seems to have been carried on by Herr C. Glaszner, who lives at Larnaca and whose acquaintance I have had the pleasure of making. He has succeeded in bringing up the number to 249, and his contributions to the ornithology of the island appear in the Ann. Mus. Nat. Hung. Buda-Pest, 1904, under the editorship of Dr. Julius von Madarász. As might be expected from its size and the peculiarly isolated character of its great southern range of mountains, Cyprus possesses several species quite peculiar to itself, but being tucked away up in the north-western corner of the Mediterranean and only 45 miles from the mainland of Cilicia on the north and some 60 from Syria on the east, the larger number of the island’s birds are those of species which inhabit Southern Europe and Asia Minor. In spring and autumn many migratory species appear and pass.

“Of the species or subspecies which have been separated as peculiar to the island, the first is the Wren, which von Madarász separates from *Troglodytes parvulus* as *Anorthura*

cypristes. Next a Dipper or Water-Ouzel (*Cinclus olympicus*), only found amongst the hill-torrents of the mountains and which, being a very stationary species, is just the kind of bird to assume—as it has—in an island a marked individuality. A Chat (*Saxicola cyprica*), a Tit (*Parus guillemardi*), a Crossbill (*Loxia guillemardi*), a Jay (*Garrulus glaszneri*), and an Owl (*Scops cypria*) more or less complete the list of indigenous birds.

“On the whole the birds here naturally remind me much more of England than the Transvaal and many species abundant in England are here also very common. The Blackbird (*Turdus merula*), Song Thrush (*Turdus musicus*), Nightingale (*Philomela luscinia*), Robin (*Erithacus rubecula*), the House Sparrow (*Passer domesticus*), and many other old familiar English friends are here.

“Of the 249 species occurring in Cyprus at least 190 are in the British list. A Francolin (*Francolinus vulgaris*), the local Partridge (*Caccabis chukar*), the Collared Turtle Dove (*Columba risoria*), the Lesser Mediterranean Shearwater (*Puffinus yelkouanus*), the Slender-billed Gull (*Larus gellastes*), the Roseate Pelican (*Pelecanus onocrotalus*), the Slender-billed Curlew (*Numenius tenuirostris*), the Greater Sand Plover (*Ægialitis geoffroyi*), the Spur-winged Plover (*Hoplopterus spinosus*), the Black Vulture (*Vultur monachus*), Bonelli's Eagle (*Nisaëtus fasciatus*), Imperial Eagle (*Aquila heliaca*), Saker (*Falco saker*), La Marmora's Falcon (*Falco eleonora*), Pallid Harrier (*C. swainsoni*), Smyrna and Pied Kingfishers (*Halcyon smyrnensis* and *Ceryle rudis*), Pallid Swift (*Cypselus pallidus*), Purple-winged Starling (*Sturnus purpurascens*), Spanish Sparrow (*Passer salicicola*), Rock Sparrow (*Fringilla petronia*), Large-billed Reed Bunting (*Emberiza pyrrhuloides*), Cretzschmar's Bunting (*Emberiza caesia*), Black-headed Wagtail (*Motacilla melanocephala*), Crag Martin (*Cotile rupestris*), Red-rumped Swallow (*Hirundo rufula*), Rock Nuthatch (*Sitta syriaca*), Masked Shrike (*Lanius nubicus*), Black-headed Warbler (*Sylvia melanocephala*), Palestine Warbler (*Sylvia melanothorax*), Rüppell's Warbler (*Sylvia rueppelli*), Olivaceous Warbler

(*Hypolais elaiica*), Fantail or Mediterranean Grass Warbler (*Cisticola cursitans*), Hooded and Arabian Chats (*Saricola monacha* and *finshi*), Ehrenberg's Redstart (*Ruticilla mesoleuca*), and the Palestine Bulbul (*Pycnonotus xanthopygius*), besides a few other species, such as *Saricola amphileuca*, *Otomela isabellina*, *Sturnus poltaratskyi*, *Sturnus porphyronotus*, and *Corone pallescens*, the English names of which I cannot remember, have been found here, but are not, I think, included in the British list so far as I recollect, with perhaps one or two exceptions.

With the avifauna of South Africa, Cyprus possesses some natural similarity: both places receive visits from the wide-ranging littoral waders, such as the Greenshank (*Totanus nebularius*), Redshank (*T. calidris*), Sanderling (*Calidris arenaria*), Ruff (*Machetes pugnax*), Little Stint (*Tringa minuta*), Curlew (*Numenius arquata*), Curlew Sandpiper (*Tringa subarquata*), Green Sandpiper (*Totanus ochropus*), Marsh Sandpiper (*Totanus stagnatilis*), Wood Sandpiper (*Totanus glareola*), Common Sandpiper (*T. hypoleucus*), Black-winged Stilt (*Himantopus melanopterus*), Greater Sand Plover (*Ægialitis geoffroyi*), Kentish Plover (*Ægialitis cantiana*), and Ringed Plover (*Ægialitis hiaticola*). Some Terns, the Caspian Tern (*Sterna caspia*), White-winged Black Tern (*Hydrochelidon leucoptera*), Common Tern (*Sterna fluviatilis*), Little Tern (*Sterna minuta*), and the Greater Mediterranean Shearwater (*Puffinus kuhli*), visit both shores. Those European breeding species which march regularly or straggle down south of the Zambesi on migration from the winter of the Northern Hemisphere are mostly known to Cyprus—birds such as the Spotted Crake (*Crex porzana*), European Corn Crake (*Crex pratensis*), House Martin (*Chelidon urbana*), European Sand Martin (*Cotile riparia*), European Swallow (*Hirundo rustica*), Tree Pipit (*Anthus trivialis*), Blue-headed Wagtail (*Motacilla flava*), Red-backed Shrike (*Lanius collurio*), the European White-throat (*Sylvia cinerea*), Garden Warbler (*Sylvia hortensis*), Willow Wren (*Phylloscopus trochilus*), Great Reed Warbler (*Acrocephalus arundinaceus*), Sedge Warbler (*Acrocephalus*

schorobornus), the Mediterranean Grass Warbler (*Cisticola cursitans*), European Wheatear (*Saxicola ornathe*), Spotted Flycatcher (*Muscicapa grisola*), European Swift (*Cypselus apus*), European Nightjar (*Caprimulgus europæus*), European Roller (*Coracias garrulus*), European Bee-eater (*Merops apiaster*), European Cuckoo (*Cuculus canorus*), Hobby (*Falco subbuteo*), Little Bittern (*Ardetta minuta*), Night Heron (*Nycticorax griseus*), Squacco Heron (*Ardeola ralloides*), Purple Heron (*Ardea purpurea*), White Stork (*Ciconia alba*), Greater Flamingo (*Phœnicopterus roseus*), European Shoveller (*Spatula clypeata*), Moorhen (*Gallinula chloropus*), Pratincole (*Glareola pratincola*), and perhaps a few more.

It is, however, almost entirely only in the case of those species which touch both places in their great migration waves that similarity between the avifauna of Cyprus and South Africa exists—a fact which is, of course, natural in view of the great distance separating the two localities. A few—a very few—species of enormous distribution are resident or substantially so in both localities, as, for example, the Barn Owl (*Strix flammea*), Grey Heron (*Ardea cinerea*), Baillon's Crake (*Crex bailloni*), Black Vulture (*Otogyps auricularis*), and the Pied Kingfisher (*Ceryle rudis*).

“The natives of the island shoot a great deal of game, which finds a ready sale in the island towns. The staple game-bird is the Partridge (*Caccabis chukar*), a handsome bird of the French partridge type, with red legs and bright white and black chest-feathering. The Francolin (*Francolinus vulgaris*) is entirely protected by statute until 1911, as it was becoming extinct, but a considerable number have been recently observed since they were made Royal birds.

“In the winter months a good many Duck of various species, chiefly Wigeon (*Mareca penelope*), Mallard (*Anas boschas*), and Teal (*Anas crecca*), and a few Grey-lag Geese (*Anser ferus*), come to the salt-pans and lakes, and in hard weather good bags of Snipe and Woodcock (*Scolopax gallinago* and *S. rusticola*) can be obtained in marshy and suitable ground. Sometimes—usually about October and in

spring—large flights of Quail (*Coturnix vulgaris*) are found and afford good sport.

“Partridges fetch retail about 9*d.* apiece, Snipe 4*d.*, Woodcock 1*s.*, and Quail 1½*d.* or 2*d.*

“A delicacy here is the so-called Ortolan. It is popularly supposed to be the Ortolan Bunting (*Emberiza hortulana*), but probably includes more than one species of small bird and certainly *Sylvia atricapilla* (Blackcap) in considerable numbers. These little birds are snared by the peasants and shepherd lads with bird-lime in the autumn at the time of migration in large numbers in vineyards and similar suitable spots. They are called locally, and indeed generally, in Southern Europe ‘Beccaficos.’ When caught they are roughly plucked without being ‘drawn’ and are served either fresh roasted on toast as are Quail, or are pickled in wine or vinegar and eaten raw as ‘hors-d’œuvres.’ I prefer them in the former state, but they are undoubtedly savoury when served in the latter style.

“There is a strong Game Law and a Wild Birds’ Protection Statute. ‘Game’ includes Pheasants (there are none in the island), Francolins, Partridges, Sand Grouse (*Pterocles arenarius*), Bustards (we get *Otis tarda* and *Otis tetraw*), Wild Ducks (14 species are recorded), Wild Geese, Woodcock, Snipe (Jack, Common, and Great), Quails, and Landrails. The close season for Partridges is from 1st February to 12th October, but Wild Duck, Woodcock, or Snipe may be shot any time between Sept. 1st and March 15th: no game may be exported; no person may take, sell, or have in his possession eggs of any game-bird. No wild birds—except Wood Pigeons, Crows, Magpies, Fieldfares, and Bee-eaters—may be shot or caught in a close season fixed between 15th Feb. and 1st August, except for scientific purposes under authority of Government.

“I think I have already written probably more than you will care to read. I am writing without any proper books of reference and only have the S. African Check-list and a bare list of Cyprus birds before me, so I have had to trust to

memory a great deal ; still I hope I have not made many mistakes and that the above notes may be interesting to Members of the Union, to which I wish, as always, all prosperity.

“ Yours very truly,

“ Nicosia, Cyprus,
Nov. 13, 1907.”

“ JOHN A. BUCKNILL.”

IX. LONGEVITY OF YELLOW-BELLIED SEED-EATER

(*SERINUS FLAVIVENTRIS*).

It might interest your readers to know that a specimen of the above bird has been in the possession of a gentleman in Port Elizabeth as a cage-bird for the past 18 years. It would doubtless have lived much longer if an accident had not happened to it. This is a good instance of the longevity of small birds. When captured 18 years ago it was adult, and may then have been several years old. Comparatively little is known as to the life-periods of the various species of birds.

Yours sincerely,

Port Elizabeth Museum,
Port Elizabeth,
29th May, 1907.

F. W. FITZSIMONS.

X. DEPREDATORY HABITS OF THE VULTURE

(*GYP S KOLBII*).

In the Amersfoort district I knew of a case where two full-grown and *apparently* healthy merino sheep, being part of a flock of 400, were attacked and killed by South African Griffon Vultures, but I think it must be exceptional for these birds to attack healthy animals. As Maquabie, the farm on which the incident occurred, is only 60 miles from the Compies River, where these birds breed and have their home, it is probable that they came from there, as it would easily be within their beat. And the explanation in this case would probably be that these birds had been attacking and living on weak and sickly sheep all the winter. The season was such a severe one that, in the majority of cases, the

animals were so weak as to be unable to defend themselves against these powerful birds. When in October the flocks left the Low Country and returned to the High Veldt these Vultures were robbed of their abnormal supply of food and in consequence followed the sheep to the High Veldt, where, shortly after the flocks returned from the Low Country, these two healthy ewes that I mention were killed. I think it was due more to the habits these birds had acquired during an exceptionally severe winter, when they frequently killed and ate weakly sheep, than to their natural instinct; I have frequently seen Vultures flying over and feeding on the same farm all the summer, but they have not repeated their attacks on healthy sheep.

Whilst recognizing the good that Vultures do, I think that in certain localities it would be very beneficial to the farmers if these destructive birds were kept in check: as for instance, at the dwelling-place I mention above, on the Compies River. During the winter (when the birds are breeding) thousands of sheep trek into this district, and during the lambing-season at any rate these birds do a great amount of damage, killing ewes and lambs in numbers. To the large farmer the good these birds do as scavengers may recompense him for the loss of a few ewes and lambs, but to the small farmer, who is trying to work up the number of his flock after the late war, it is very hard. I would suggest that these Vultures should be thinned out in this locality, which could easily be done by shooting them as they return to their sleeping-place at night.

It would be interesting to hear from Members of the Union whether similar incidents have occurred in other parts of South Africa.

C. H. TAYLOR.

XI. A NOTE CONCERNING SOME PROPERTIES OF THE COLOURING-MATTER IN THE REMIGES OF *TURICUS CORYTHALIX*.

I have lately investigated a statement which occurs in vol. i. of Taylor's 'Medical Jurisprudence,' to the effect that it had been recorded that the colouring-matter extracted from

the feathers of the Cape Lory when examined spectroscopically "presents two absorption bands similar to those of blood in form and position." This assertion I find to be more or less correct, inasmuch as the absorption bands produced in the spectrum of a solution of pigment from the primary feathers are identical with those obtained in the spectrum of oxyhæmoglobin.

A further test, however, puts an end to this similarity, for whereas one drop of a 25 % solution of sulphuric acid immediately destroys the bands obtained in the oxyhæmoglobin, an amount of the same acid equal in bulk to that of the solution of feather pigment has but a slight effect upon the absorption bands in this case, merely causing the right band to become less distinct. I have tried various reagents for the extraction of the colour from the feathers as follows :—

<i>Reagent.</i>	<i>Colour extracted.</i>
Caustic soda 1 %	Good.
Sulphuric acid conc.	Slight.
" " 25 %	Nil.
Glacial acetic acid	"
Hydrogen peroxide	"
Ether (sulph.)	"
Alcohol (absolute)	"
Normal saline sol.	"
Water	"

From this it would appear that the colour is fairly "fast." I can find no record of any other natural pigment which gives a similar spectroscopic appearance to the one above described. It would be interesting to know if this property is confined to the colouring-matter of the feathers of this species alone, or is more general. I hope (through the courtesy of Mr. Haagner, who has kindly promised to procure for me coloured feathers from other species) to be able to continue this investigation.

20. 3. 08.

E. H. U. DRAPER,
Assist. Bact. Govt. Lab. Jbg.

XII. NOTES ON WADERS OBSERVED ON THE COAST OF
BRITISH EAST AFRICA.

Mombasa. October and beginning of November, 1900.

In the mangrove-swamps: a few Curlew; plenty of Whimbrel and Common Sandpiper.

On the coral-reefs: a few Curlew Sandpiper; large flocks of Sanderling, and many Ring-Dotterel; the latter, though not in large flocks, were the most numerous, being scattered in small parties up and down the coast.

Takaungu (40 miles N. of Mombasa).

End of November 1900. In mangroves: a few Curlew and Greenshank, but no Whimbrel.

On the reefs: Ring-Dotterel and Grey Plover common; Sanderling rare.

January and February 1901: Curlew and Greenshank common in every creek, but, with the exception of Ring-Dotterel, few of the smaller Waders were to be seen.

Middle of March: Curlew and Greenshank in very much smaller numbers; Curlew Sandpiper numerous in small flocks and very tame. Sanderling appeared for a few days only: they were in large flocks.

I feel sure I saw Turnstones, but as I did not bag any I cannot be absolutely certain of the identity.

Shimoni (60 miles S. of Mombasa).

May 15th: a few Curlew and Whimbrel only.

Identification certain in every case, except Turnstone. Specimens of all other species were secured.

A. BLAYNEY PERCIVAL, F.Z.S., M.B.O.U.

Nairobi, B.E.A.

XIII. THE ENGLISH SPARROW QUESTION.

The 'Transvaal Agricultural Journal' for January 1908 contains a letter from one of our American members—Dr. Frederick D'Evelyn, President Cooper Ornithological Club of California—regretting the appearance of the English Sparrow in Pretoria, and pointing out what a veritable curse its introduction into the United States has become.

The matter was referred to at some length on several previous occasions in this Journal, and it remains but to say that, with the exception of the one or two examples already recorded, no more English Sparrows have been procured at Pretoria.

[It may be of interest to our Members to know that Dr. D'Evelyn is an old Pretorian, having been in the siege of 1881, when he left one of his legs behind him, as the result of a wound received from one of the besieging Boers.—A. H.]

XIV. A MARKED STORK IN SOUTH CENTRAL AFRICA.

In the April number of the 'Ornithologische Monatsberichte' we see that, according to 'The Field' of 25th January, 1908, a letter appeared dated from Fort Jameson, N.E. Rhodesia, announcing the capture of a White Stork marked with a ring bearing the words: "Vogelwarte Rossitten 163, Germania." This bird was marked by Mr. Franz Bahr of Streitz, Köslin, Germany, and was liberated with two others on the 25th August, 1907. The date of the letter, which was signed by Mr. Thornicroft, is 16th December, 1907, and the exact date on which the bird was shot has been written for. This is an extremely interesting case, and we would ask our readers to keep this matter before them, as it is only by co-operation (North with South) that we can ever hope to obtain closer acquaintance with the phenomenon of migration.

XV. Mr. JOHN A. BUCKNILL, M.A. (the King's Advocate, Cyprus), President of the S.A.O.U. for 1907, and Chief Editor of this Journal from June 1905 to April 1907, expresses his gratification and pleasure at the honour done him by the Union in electing him an Honorary Member, and wishes to tender his sincere thanks to the Members.

XV.—*Short Notices of Ornithological Publications.*

- XI. *Sketches of South African Bird-Life.* By Alwin Haagner and Robert H. Ivy. Illustrated by the Camera. R. H. Porter, London (1908), and T. Maskew Miller, Cape Town. Price 20s.

This little work fills a much-needed want in the literature of South Africa, viz., a popular account of the commoner birds inhabiting the country. The book is attractively got up: it is bound in orange art-linen, with gilt top, and is illustrated with 92 full-page plates and 15 text-figures, comprising 123 photographs of birds and their nests and eggs—with few exceptions from life. Mr. Robert Ivy, of Grahams-town, to whose artistic skill and indomitable patience the South African public are indebted for this beautiful series of photographs (the taking of which extended over a period of nearly 15 years), is almost wholly responsible for the illustrations, while to Mr. Haagner (the Secretary of the Union) fell the task of compiling the text of the work. We can strongly recommend the book to all lovers of natural history, and it will be of especial value to beginners in the study of field ornithology in South Africa. J. W. B. G.

- XII. *Three Voyages of a Naturalist, being an Account of many little-known Islands in Three Oceans visited by the 'Valhalla,' R.Y.S.* By M. J. Nicoll, M.B.O.U.

It seldom falls to the lot of a young and unknown Naturalist to experience such a windfall of luck as that which brought to Mr. Nicoll the chance of a lifetime, viz. a cruise round the world. The book before us is a brightly written account of three cruises in perhaps the finest private yacht afloat. The first portion relates to a voyage round Africa, during which many of the outlying islands were visited and much rich booty, in the way of natural history specimens, collected. Amongst matter of local interest the Author describes a visit to Dassen Island, and publishes several photographs of the masses of Penguins which inhabit

the island. The second trip was a voyage to the West Indies, and the third a voyage round the world. It was on the last-mentioned trip that Mr. Nicoll, in company with Mr. E. G. B. Meade-Waldo, saw a strange-looking creature, of which he gives a drawing, thereby again awakening the "sea-serpent" stories. Mr. Nicoll has, however, communicated the matter to the Zoological Society of London, so there would appear to have been more truth in the old-time sailor-yarns than was popularly supposed. The ornithological work done by Mr. Nicoll during these voyages was excellent, and has already been referred to very fully in the pages of this journal (see review of 'Ibis' in June 1907 number, pp. 149-155). The book is illustrated by 56 plates, depicting, for the most part, scenery of various out-of-the-way places, and several text-illustrations; with an introduction by the Earl of Crawford (the owner of the yacht).

This deeply interesting work is published by Witherby & Co., 326 High Holborn, London, at the modest price of 7s. 6d.

A. K. H.

XIII. *The Aquila: Journal of the Hungarian Ornithological Office.* 1907 Volume.

The account of the Migration in Hungary in the spring of 1906 (13th Annual Report of the Hung. Central Office of Ornithology) by Jakob Schenk is one which we here in South Africa can heartily appreciate; the data are in many cases exhaustive, and the report comprises 136 pp. It reflects the greatest credit, not only on the compiler, but on the hundred observers who took the trouble of sending in reports. We could not get one-tenth of that number to assist us!

Another interesting article by the author of the above-mentioned report is an account of the "Locust-pest on the Hortobagy in 1907, and the Bird-world." Amongst the birds which assisted in the destruction of the pest were the Red-legged Kestrels (*Cerchneis respertinus*), Pratincoles (*Glareola pratincola*), and Storks (*Ciconia ciconia*); the latter birds accounting for "enormous numbers." Titus Csörgey found 1600 locust-mandibles in one specimen of the White Stork,

this meaning at least 100,000 locusts per day as food for a flock of 100 birds.

In the "Short Notes" we observe a paragraph by Bela Rácz to the effect that a pair of Storks (*Ciconia ciconia*) devoured some 40 ducklings, even visiting neighbouring yards, until it was eventually shot.

XIV. *The Ibis, a Quarterly Journal of Ornithology.*

In the January number appears a further contribution on the Birds of Gazaland, by C. F. M. Swynnerton, Col. M.B.O.U. This paper further enhances the value of the exceedingly useful work done by our energetic Rhodesian ornithologist, and contains besides exhaustive notes on the habits of many of our rarer birds, the first records of several additional species new to the South African list. These are:—

<i>Estrilda kilimensis.</i>	<i>Serinus sharpei.</i>
<i>Cimyris microrhynchus.</i>	<i>Lanius humeralis.</i>
<i>Parus cinerascens parvirostris.</i>	<i>Laniarius manningi.</i>
<i>Heliolais erythroptera.</i>	<i>Turdus milanjensis.</i>
<i>Turdus tropicalis.</i>	<i>Monticola angolensis.</i>
<i>Saxicola pileata livingstonei.</i>	

Besides these birds two species new to science are included: *Batis erythrophthalma*, Swyn., and *Trochocercus megalolophus*, Swyn. The latter bird is illustrated on a well-coloured lithograph by Keulemans, depicting both ♂ and ♀.

There is also a map of the districts collected in.

In this number is also included Part V. of Dr. Sharpe and Mr. G. L. Bates' paper on the birds collected by the latter in the Efulen District of the Cameroons. This is illustrated by a coloured plate of *Geocichla batesi*.

The April number contains:—1. An article entitled "A Second Contribution to the Ornithology of the Soudan." By A. L. Butler, Superintendent of Game Preservation.

2. "On a Collection of Birds made by Mr. Douglas Carruthers during his Journey from Uganda to the Mouth of the Congo" by W. R. Ogilvie-Grant. Illustrated by a coloured plate of *Anthothreptes carruthersi*.

3. Part VI. of the paper on the Cameroons by Dr. Sharpe and Mr. Bates, mentioned above; with a coloured plate of *Malimbus coronatus*.

This number also publishes a letter from Mr. A. D. Millar, of Durban (Vice-President S.A.O.U.), describing the nesting of the Red-winged Pratincole (*Glareola pratincola*) in Natal. The eggs were laid on the bare ground on the ridges between the furrows of a ploughed land. It may be well to here contradict the statement in Sclater's 'Birds' (vol. iv.) that this bird is only an accidental visitor to this country. Both Mr. Thomson (Journal S.A.O.U. 1907) and Mr. C. H. Taylor (*in litt.*) have recorded its occurrence in large numbers.

XV. *The Emu: the Official Organ of the Australasian Ornithologists' Union.*

The January (1908) number of our Australian contemporary contains the account of the 7th (Sydney) session of the Union, from which we are glad to see the Aust. O.U. is continuing its successful career. Mr. A. J. Campbell contributes an interesting paper on the history of Bird Protection, using as a basis the historical sketch by Otto Herman on the "International Convention for the Protection of Birds, concluded in 1902." We have duly received a copy of this latter publication, a review of which will appear later.

XVI. *Bulletin of the British Ornithologists' Club.*

The June 1907 number (cxxxv.) contains the following descriptions of species new to South Africa: *Erythropygia pæna damarensis*, E. Hartert; *Batis erythrophthalma* (similar to *B. capensis*) and *Trochocerus megalolophus* (similar to *T. cyanomelus*), C. F. M. Swynnerton (from Gazaland, Southern Rhodesia). In the October 1907 number appears Haagner's description of *Cinnyris olivaceus daviesi*, and in the November number Dr. Sharpe's *Colius kirbyi* (from Lydenburg, Tvl.). The January 1908 number contains the description of a new Francolin by O. Neumann (*F. jugularis pallidior*) from German South-west Africa. Dr. Sclater reports on the breeding of *Glareola melanoptera* in Natal.

The February 1908 number gives us a description by E. C. Chubb, of the Rhodesia Museum, of *P. mennelli*, similar to *Poliospiza gularis*.

XVII. 'Ornithologische Monatsberichte.'

In the December 1907 number, Mr. Oscar Neumann describes a new subspecies of Lourie; he separates the Transvaal form of *Turacus corythairx* under the trinomial name of *T. c. phœbus*, subsp. nov. His reasons for so doing are given as follows: upper-back, wing-quills, and tail almost wholly glossed with blue; lower-back and rump black with a lilac-steel-blue (not green) sheen. The February number contains a criticism of Mr. Oscar Neumann's conclusions regarding the genus *Telephonus* by Mr. Haagner.

Mr. Neumann's paper will be found reviewed under the heading of the 'Journal für Ornithologie.'

XVIII. 'Novitates Zoologicae,' vol. xiii. November 1907.

This number contains a paper by Dr. Ernst Hartert titled "Notes on African Birds," Part I. A list of the collections of African skins in the Tring Museum is first given, followed by remarks on various species. The name of *Textor niger* Dr. Hartert puts down as *T. albirostris niger* (Sm.). He also states that the old specific name of *bicolor* by which the Bush Weaver was formerly known is the correct one, and not *gregalis*, the present name in use.

NAME INDEX.

A.

Accipiter rufiventris, 100.
Acrocephalus arundinaceus, 125.
 — *beticatus*, 81.
 — *schænobæus*, 126.
Actophilus africanus, 121.
Ægialitis cantiana, 125.
 — *geoffroyi*, 125, 126.
 — *hiaticola*, 125.
 — *tricoloris*, 106.
 African Buzzard Eagle, 98.
 — Goshawk, 100.
 — Hawk Eagle, 97.
 — Jacana, 121.
 — Reed-Warbler, 81.
 — Sparrow Hawk, 100.
 — Spoonbill, 104.
 — White-backed Vulture, 101.
Alæmon semitorquata, 4.
Alaudida, 4.
Alseonax adustus, 89.
Amydrus morio, 74.
Anaplectes rubriceps, 113.
Anas boschas, 126.
 — *capensis*, 44.
 — *crecca*, 126.
 — *sparsa*, 104.
 — *undulata*, 104.
Andropadus importunus, 78.
Anorthura cyprïotes, 123.
Anser ferus, 126.
 Ant-eating Thrush, 85.

VOL. IV.

Anthropoides paradisea, 106.
Anthus pyrrhonotus, 5, 109.
 — *rufulus*, 5.
 — *trivialis*, 125.
Aquila heliaca, 124.
 — *rapax*, 97, 108, 111.
 — *wahlbergi*, 97.
Ardea cinerea, 49, 103, 126.
 — *melanocephala*, 103.
 — *purpurea*, 103, 126.
Ardeola ralloides, 126.
Ardetta minuta, 126.
Arenaria interpres, 106.
Asio capensis, 10, 93.
Astur tachiro, 40, 100.
Asturizula monogrammica, 98.

B.

Babbler, Jardine's, 109, 115.
 —, Tit, 80.
 Babbling Reed-Warbler, 116.
 Baillon's Crake, 105, 126.
 Bald Ibis, 103.
Balearica regulorum, 106, 121.
 Barbet, Crested, 119.
 —, Pied, 9.
 Barn Owl, 92, 126.
 Bee-eater, Carmine-throated, 118.
 —, European, 61, 67, 110, 126.
 —, Little, 118.
 —, Swallow-tailed, 118.

11

- Berg Gans, 17.
 Blackbird, 124.
 Blackcap, 127.
 Black-capped Bulbul, 109, 115.
 Black-crested Cuckoo Shrike, 117.
 Black Crow, 72.
 ———— Crane, 121.
 ———— Duck, 104.
 Black-headed Oriole, 77, 113.
 ———— Heron, 103.
 Black-shouldered Kite, 99.
 Black Spurwing Goose, 104.
 ———— Stork, 102, 120.
 Black-thighed Bishop Bird, 114.
 Black Vulture, 101, 126.
 Black-winged Stilt, 125.
 Blue-headed Wagtail, 125.
 Blue Crane, 106.
Botaurus capensis, 103.
Bradyornis maricensis, 116.
Bradypterus babœculus, 116.
 Brubru Shrike, 115.
Bubo capensis, 93.
 ———— *maculosus*, 10, 93.
Bubonide, 10.
Bucorax cafer, 118.
 Buff-streaked Chat, 85.
Bugeranus curvunculatus, 106.
 Bulbul, Black-capped, 109, 115.
 ————, Cape Bristle-necked, 80.
 ————, Palestine, 125.
 ————, Sombre, 73.
 ————, Yellow-bellied, 80.
 Bunting, Cape, 3.
 ————, Cretzschmar's, 124.
 ————, Large-billed Reed, 124.
 ————, Ortolan, 127.
 ————, Rock, 3, 51, 114.
Buphaga erythrorhyncha, 74.
 Burchell's Courser, 14, 106.
 Bush Chat, Arnott's, 116.
 ———— Robin, Silent, 88.
 ————, White-starred, 87.
 Bustards, 13.
Buteo jakal, 98.
Butorides atricapilla, 111.
 Buzzard, Jackal, 98.

 C.
 Cabanis's Thrush, 83.
Caccabis chnkar, 124.
Calidris arenaria, 125.
 Cape Bittern, 103.
 ———— Bristle-necked Bulbul, 80.
 ———— Dabchick, 107.
 ———— Eagle Owl, 93.
 ———— Flycatcher, 89.
 ———— Rock Thrush, 83.
 ———— Thrush, 82.
 ———— Wigeon, 44.
Capitonide, 9.
 Capped Wheatear, 87.
Caprimulgide, 8.
Caprimulgus europæus, 8, 126.
 ———— *natalensis*, 52.
 ———— *pectoralis*, 8.
 ———— *rufigena*, 9.
 ———— *trinaculatus*, 108, 110.
 Cardinal Woodpecker, 118.
 Carmine-throated Bee-eater, 118.
Casarca cana, 44, 104.
 Caspian Tern, 125.
Centropus burchelli, 36.
 ———— *flecki*, 36.
 ———— *senegalensis*, 36.
 ———— *supercilius*, 37.
Cerchneis nanmanni, 61, 64, 67, 69.
 ———— *vespertina*, 64.
Certhilauda rufula, 4.
Ceryle rudis, 110, 118, 126.
Charadrius tricoloris, 15, 50.
 Chat, Ant-eating, 85.
 ————, Arabian, 125.
 ————, Buff-streaked, 85.
 ————, Galton's 87.
 ————, Hooded, 125.
 ————, Mountain, 86.
 ————, South African Stone, 86.
Chelidon urbica, 49, 125.

- Chenalopex aegyptiacus*, 17, 44.
Chlorocichla flaviventris, 80.
Chlorodyta flavidus, 49.
Chrysococcyx klaasi, 119.
Ciconia alba = *C. ciconia*, 61, 64, 67,
 119, 126.
 — *nigra*, 48, 102, 120.
Cinclus olympicus, 124.
 Cinnamon-backed Pipit, 109.
Cimyrincinclus leucogaster verreauxi,
 109.
Cinnyris afer, 5.
 — *amethystinus*, 6.
 — *gutturalis*, 5.
 — *leucogaster*, 109.
 — *olivaceus daviesi*, 45.
Circus rufivorus, 100.
 — *swainsoni*, 124.
Cisticola aberrans, 110, 116.
 — *cursor*, 125, 126.
 — *stohri*, 49.
Coccyzus serratus, 79.
Coliopasser ardens, 2, 114.
 — *procne*, 2, 44.
Columba phaeonota, 13.
 — *risoria*, 124.
Columbidae, 12.
 Coot, Red-knobbed, 105.
Coracias garrula, 64, 117, 126.
 Corn Crane, 68.
Corone pallescens, 125.
Corvus capensis, 72.
 — *scapulatus*, 71.
Corythornis cyanostigma, 110.
Cosmetornis vixillarius, 117.
Coturnix capensis, 14, 50.
 — *delagorguei*, 50.
 — *vulgaris*, 127.
Cotyle cincta, 44.
 — *riparia*, 125.
 — *rupestris*, 124.
 Coucal, Senegal, 36.
 —, South African, 36.
 —, White-browed, 37.
 Courser, Burchell's, 103.
 Crag Martin, 124.
 Crane, Baillon's, 105, 126.
 —, Black, 121.
 —, Corn, 68, 125.
 —, Spotted, 125.
Crateropus jardinei, 109, 115.
Cretophora carunculata, 74.
 Crested Barbet, 119.
 — Grebe, 107.
Crex bailloni, 126.
 — *porzana*, 125.
 — *pratensis*, 125.
 Crow, Black, 72.
 —, Pied, 71.
 Crowned Crane, 106, 121.
 — Lapwing, 15.
 Cuckoo, Klaas', 119.
 Cuckoos, 78.
 Cuckoo Shrike, Black-chested, 117.
Cuculus canorus, 64, 126.
 — *clamosus*, 79.
 Curlew, 68, 106, 125, 131.
 —, Slender-billed, 124.
Cursorius bicinctus, 15.
 — *rufus*, 14, 106.
Cymodroma grallaria, 53.
 — *melanogaster*, 53.
Cypselus apus, 66, 126.
 — *pullidus*, 124.

D.

- Dabchick, Cape, 107, 121.
Dendrocycna viduata, 104.
Dendropicus cardinalis, 9, 118.
 Diamond Sparrow, 114.
Diaphorophya ansorgei, 47.
 — *chlorophrys*, 47.
Dicrocercus hirundinuaceus, 118.
Dicrurus afer, 91, 110, 117.
 — *ludwigii*, 92.
 Dikkop, 14.
 Double-banded Courser, 51.
 Double Snipe, 107.
 Dove, Bush, 13.

Dove, Cape Turtle, 12, 120.
 —, Cinnamon, 13.
 —, Collared Turtle, 124.
 —, Senegal, 12.
 Drongo, Fork-tailed, 91, 110, 117.
 —, Square-tailed, 92.
Dryoscopus mossambicus, 108.
 Duck, Black, 105.
 —, Cape Shoveller, 105.
 —, Hottentot Teal, 105.
 —, Knob-billed, 120.
 —, Maccoa, 105.
 —, Red-billed Teal, 105.
 —, S.A. Pochard, 105.
 —, S.A. Shel-, 104.
 —, White-backed, 105, 120.
 —, White-faced, 104.
 —, Yellow-billed Teal, 104.
 Dusky-faced Bush Warbler, 116.
 Dusky Flycatcher, 89.

E.

Eagle, African Buzzard, 98.
 —, — Hawk, 97.
 —, Bonelli's, 124.
 —, Imperial, 124.
 —, Martial, 97.
 —, Tawny, 97, 111.
 —, Wahlberg's, 97.
 Eagle-Owl, Cape, 93.
 —, Spotted, 93.
 Egret, Great White, 120.
 —, Little, 120.
 —, Yellow-billed, 103.
Elanus caeruleus, 99.
Emarginata sinuata, 87.
Emberiza caesia, 124.
 — *hortulana*, 127.
 — *pyrrhuloides*, 124.
Eremomela scotops, 116.
Erismatura maccoa, 105.
Erithacus rubecula, 124.
Erythrocnus rufiventris, 48.
Estrilda astrilda, 2, 113.

Estrilda erythronota, 2.
 — *macmillani*, 52.
 — *subflava* = *clurkei*, 3, 113.
Estrildinae, 2.
 Ethiopian Snipe, 68, 107.
Eurocephalus anguitimens, 77.
 European Bee-eater, 61, 67, 110, 126.
 — Corn Crane, 125.
 — Cuckoo, 126.
 — Roller, 117, 126.
 — Sand Martin, 125.
 — Shoveller, 126.
 — Swallow, 61, 65, 66, 69, 110, 125.
 — Swift, 66, 126.
 — Wheatear, 126.
 — Whitethroat, 125.
Eutolmaëtus bellicosus, 97.
 — *spilogaster*, 97.

F.

Falco eleonora, 124.
 — *ruficollis*, 94.
 — *saker*, 124.
 — *subbuteo*, 126.
 Falcon, La Marmora's, 124.
 —, Pigmy, 96.
 —, Red-necked, 94.
 —, Saker, 124.
 Finfoot, Peters', 107.
 Flycatcher, Cape, 89.
 —, Dusky, 89.
 —, Marique, 116.
 —, Paradise, 90, 110, 116.
 —, Spotted, 126.
 —, White-flanked, 90, 116.
 Fork-tailed Drongo, 91, 110, 117.
 Francolin, Cape, 33.
 —, Coqui, 21.
 —, Grey Wing, 22.
 —, Orange River, 28.
 —, Red Wing, 27.
 —, Shelley's, 31.
Francolinus africanus, 20, 22.

Francolinus capensis, 32.
 — *coqui*, 26, 21.
 — *garipeensis*, 21, 28.
 — *jugularis*, 29.
 — *lecaillanti*, 21.
 — *shelleyi*, 21, 29, 31.
 — *vulgaris*, 124, 126.
Fringilla petronia, 124.
Fringillaria capensis, 3.
 — *tahapisi*, 3, 114.
Fringillide, 3.
Fulica cristata, 45, 105.

G.

Gallinago media, 107.
 — *nigripennis*, 68, 107.
Gallinula angulata, 45, 121.
 — *chloropus*, 105, 126.
 Galton's Chat, 87.
 Garden Warbler, 115.
Garrodia nereis, 53.
Garrulus glasneri, 124.
Geronticus calvus, 103.
Glareola melanoptera, 61, 66, 67.
 — *pratincola*, 67, 126.
Glaucidium perlatum, 94.
 Glossy Starling, Red-shouldered, 76.
 — —, Lesser Red-shouldered,
 76, 109, 112.
 — Ibis, 103.
 Golden Oriole, 113.
 Goose, Black Spurwing, 104.
 —, Egyptian, 44.
 —, Spurwing, 120.
 Goshawk, S.A., 40, 100.
 Grass Warbler, Fantail, 125.
 — —, Smith's, 110, 116.
Graucalus pectoralis, 117.
 Grebe, Crested, 107.
 Greenshank, 61, 67, 106, 125, 131.
 Green-backed Heron, 111.
 Green Sandpiper, 124.
 Grey Heron, 103.
 Grey Wing Partridge, 22.

Ground Hornbill, 118.
 Ground-scraper Thrush, 81.
 Guinea-fowl, 34, 120.
 Gull, Slender-billed, 124.
Gyps kolbii, 107, 128.

H.

Halcyon chelicuti, 37.
 — *symrneensis*, 124.
 Hammerhead, 163, 111.
Haplopetia larvata, 13.
 Harrier, Pallid, 124.
 —, S.A., 100.
 Hawk, African Sparrow, 100.
 — Eagle, African, 97.
Herodias alba, 120.
 — *bruchyrhyncha*, 103.
 — *garzetta*, 120.
 Heron, Black-headed, 103.
 —, Green-backed, 111.
 —, Grey, 103.
 —, Night, 103, 126.
 —, Purple, 103, 126.
 —, Squacco, 126.
 —, White-backed Night, 40.
Heterocorys breviunguis, 44.
Himantopus candidus, 40.
 — *melanoptera*, 125.
Hirundo albigularis, 65, 66, 68.
 — *cucullata*, 44, 66, 68.
 — *puella*, 49, 68.
 — *rufula*, 124.
 — *rustica*, 61, 64, 65, 66, 69, 110,
 125.
 — *semirufa*, 66, 68, 110.
 Honey-Guide, Sparrman's, 119.
Hoplopterus spinosus, 124.
 Hornbill, Ground, 118.
 —, Yellow-billed, 118.
 Hottentot Teal, 105.
Hydrochelidon hybrida, 45, 66, 107.
 — *leucoptera*, 125.
Hyphantornis velatus, 113.
Hypochera colvingtoni, 49.
Hypolais elaiica, 125.

I.

Ibis æthiopica, 45, 103.

Ibis, Bald, 103.

—, Glossy, 103.

—, Sacred, 103.

Indicator sparmani, 119.

Iynx ruficollis, 19.

J.

Jacana, African, 121.

Jackal Buzzard, 98.

Jardine's Babbler, 109, 115.

K.

Kestrel, Larger, 95.

—, Lesser, 67, 69.

—, South African, 94.

King Reedhen, 105.

Kingfisher, Pied, 118, 124.

—, Smyrna, 124.

Kite, Black-shouldered, 99.

—, Yellow-billed, 68, 98, 119.

Kolbe's Vulture, 101.

Korhaan, Blue, 50.

Kurrichane Thrush, 116.

L.

Lamprocolius phanicopterus, 76.

— — — *bispecularis*, 76, 109, 113.

Laniarius sulphureipectus, 109.

Laniidae, 7.

Lanius collaris, 7.

— *collurio*, 68, 115, 125.

— *minor*, 115.

— *nubicus*, 124.

Lapwing, Crowned, 121.

Larger Kestrel, 95.

Lark, Grey-collared, 4.

—, Red-capped, 4.

—, Rufous Long-billed, 4.

—, Rufous-naped, 4.

Larus gelastes, 124.

Lesser Grey Shrike, 115.

— Kestrel, 61, 67, 69.

— Moorhen, 121.

— Red-shouldered Glossy Starling,
76, 109, 112.

— Stripe-breasted Swallow, 68.

Limnocorax niger, 121.

Little Bee-eater, 118.

— Egret, 120.

— Stint, 68, 125.

— Tern, 125.

Long-claw, Cape, 4.

Long-tailed Shrike, 115.

Lophoceros leucomelas, 118.

Lourie, Knysna, 9.

Luvia guillimardi, 124.

M.

Maccoa Duck, 105.

Machetes pugnax, 125.

Macronyx capensis, 4, 45.

Malachite Kingfisher, 110.

Mallard, 127.

Mareca penelope, 126.

Marique Flycatcher, 117.

Marsh Owl, 23.

— Sandpiper, 125.

Martial Eagle, 97.

Mediterranean Grass-Warbler, 125.

— Shearwater, 125.

Melittophagus meridionalis, 118.

Merops apiaster, 61, 64, 110, 126.

— *nubicoides*, 118.

Meyer's Parrot, 111.

Milvus ægyptius, 68, 98, 119.

Mirafraga nigricans, 49.

Monticola explorator, 84, 105, 126.

— *rupestris*, 83.

Moorhen, 105, 126.

Motacilla flava, 125.

— *melanocephala*, 124.

Mountain Chat, 86.

Mozambique Shrike, 108, 109.

Muscicapa grisola, 126.

Musophagideæ, 9.
Myrmecocichla bifasciata, 85.
 — *formicivora*, 85.

N.

Nectarinia famosa, 5.
Nectariniidæ, 5.
Neophron percnopterus, 40.
Nettion capense, 16.
 — *punctata*, 105.
 Night Heron, 103.
 Nightingale, 124.
 Nightjar, European, 8, 126.
 —, Freckled, 110.
 —, Rufous-cheeked, 8.
 —, South African, 9.
 —, Standard-winged, 117.
Nilaus brubru, 115.
Nisaetus fasciatus, 124.
Numenius arquatus, 68, 106.
 — *temuirostris*, 124.
Numida coronata, 34, 120.
Nycticorax griseus, 40, 103, 126.
 — *leucomotus*, 48.
Nyroca erythrophthalma, 105.

O.

Oceanites oceanicus, 53.
Oceanodroma leucorhoa, 53.
Edicnemus capensis, 14.
 Orange-breasted Bush Shrike, 109.
 — — Waxbill, 113.
 Oriole, Black-headed, 77, 113.
 —, Golden, 64, 113.
Oriolus galbula, 64, 113.
 — *larvatus*, 79, 113.
Ortygometra pusilla, 105.
Ortygospiza polyzona, 3.
Otis afra, 13.
 — *caerulescens*, 14, 50.
 — *tarda*, 127.
 — *tetrax*, 127.
Otoggys auricularis, 101, 126.

Otomela isabellina, 125.
 Owl, Barn, 92.
 —, Cape Eagle, 93.
 —, Marsh, 93.
 —, Pearl-spotted, 94.
 —, Spotted Eagle, 93.
 Oxpecker, Red-billed, 75.

P.

Pachyprora capensis, 89.
 — *molitor*, 90, 116.
 Palestine Bulbul, 124.
 — Warbler, 124.
 Pallid Harrier, 124.
 — Swift, 124.
 Paradise Flycatcher, 90, 110, 117.
Parisoma subcæruleum, 80.
Parus guillimardi, 124.
 — *niger*, 114.
Passer arcuatus, 44.
 — *domesticus*, 124.
 — *salicicola*, 124.
Pavoncella pugnax, 107.
 Pearl-spotted Owl, 94.
Pelecanus onocrotalus, 124.
 Pelican, Roseate, 124.
Petrochelidon spilodera, 44.
Petronia petronella, 114.
 Pheasant, 32.
Phænicopterus roseus, 126.
Phylloscopus trochilus, 68, 116, 125.
Phyllostrophus capensis, 80.
Phylomela luscinia, 124.
Picidæ, 9.
 Pied Crow, 71.
 — Kingfisher, 110, 118, 124, 126.
 — Starling, 75.
 Pipit, Cinnamon-backed, 5, 109.
 —, Tawny, 4.
Platalea alba, 44, 104.
Plectropterus gumbensis, 130.
 — *niger*, 104.
Plegadis falcinellus, 103.
Ploceidæ, 1.

- Plover, Greater Sand, 125.
 —, Kentish, 125.
 —, Ringed, 125.
 —, Three-banded, 106.
 Plum-coloured Starling, 109.
 Pochard, S.A., 104.
Podiceps capensis, 45, 107, 121.
 — *cristatus*, 49, 107.
Poecilomettes erythrorhyncha, 105.
Pocephalus meyeri, 111.
Poliohierax semitorquatus, 96.
Poliospiza mennelli, 114.
Porphyrio madagascariensis, 105.
Pratincola torquata, 86.
 Pratincole, Black-winged, 61, 66, 67.
 —, Brown-winged, 67, 126.
Prionops talacoma, 49.
Procellaria pelagica, 53.
Pseudogyps africanus, 101.
Pseudotantalus ibis, 103.
Pternistes swainsoni, 32, 120.
Pterocles arenarius, 127.
 — *bicinctus*, 48.
 — *namaqua*, 13.
Puffinus kuhli, 125.
 — *yelkouanus*, 124.
 Purple Heron, 103, 126.
 Purple-winged Starling, 124.
Pycnonotus layardi, 109, 115.
 — *xanthopygius*, 125.
Pyromelana, 2.
 — *capensis*, 45.
 — — *xanthomelas*, 114.
 — *oryx*, 45.
- Q.
- Quail, Cape, 14.
Quelea cardinalis, 49.
 — *quelea*, 2.
- R.
- Reed Bunting, Large-billed, 124.
 Reedhen, King, 105.
- Reed Warbler, African, 81.
 — —, Babbling, 116.
 — —, Great, 125.
 Red-backed Shrike, 68, 115, 125.
 Red-billed Oxpecker, 74.
 — — Teal, 105.
 Red-collared Widow Bird, 114.
 Red-headed Weaver, 113.
 Red-knobbed Coot, 105.
 Red-necked Falcon, 94.
 Red-rumped Swallow, 124.
 Redshank, 125.
 Red-shouldered Glossy Starling, 76.
 Red-winged Starling, 74.
 Red Wing, 23.
Rhinopomastus cyanomelas, 117.
Rhinoptilus bicinctus, 51.
 — *seebohmi*, 48.
Rhynchæa capensis, 15.
 Robin, 124.
 Rock Bunting, 114.
 Roller, European, 117, 126.
 Rooibekkie, 2.
 Roseate Pelican, 124.
 Ruff, 107, 125.
 Rufous-breasted Swallow, 66, 68,
 110.
Ruticilla mesoleuca, 125.
- S.
- Sacred Ibis, 103.
 Saker, 124.
 Sanderling, 125, 131.
 Sand Grouse, Namaqua, 13.
 — Martin, European, 125.
 — Plover, Greater, 124, 125.
 Sandpiper, Common, 68, 107, 111.
 —, Curlew, 131.
 —, Green, 125.
 —, Marsh, 125.
 —, Wood, 68, 107.
Sarcidiornis melanonota, 120.
Saricola ananthe, 126.
 — *amphileuca*, 125.

- Saricola cyprica*, 124.
 — *familiaris galtoni*, 87.
 — *fuschi*, 125.
 — *monacha*, 125.
 — *monticola*, 86.
 — *pileata*, 87.
 Scimitar-bill, 117.
Scolopax gallinago, 126.
 — *rusticola*, 126.
Scops capensis, 10.
 — *cyprica*, 124.
Scopus umbretta, 103, 111.
 Secretary Bird, 102, 119.
 Sedge Warbler, 125.
 Seed-eater, Black-throated, 51.
 —, Shangani, 114.
 —, Yellow-bellied, 128.
 Sentinel Rock-Thrush, 84.
Serinus angolensis, 51.
 — *cunicollis*, 44.
 — *flaviventris*, 128.
Serpentarius secretarius, 102, 119.
 Shearwater, Lesser Mediterranean,
 124, 125.
 Shelduck, 44, 104.
 Shoveller, 126.
 Shrike, Brubru, 115.
 —, Lesser Grey, 115.
 —, Long-tailed, 115.
 —, Masked, 124.
 —, Mozambique, 109.
 —, Orange-breasted Bush, 109.
 —, Red-backed, 115.
 —, Smith's Helmet, 115.
 —, White-crowned, 77.
 Shrikes, 7.
 Sickle-winged Chat, 87.
 Silent Bush Robin, 88.
Sitagra capensis caffra, 45.
 — *ocularia*, 44.
Sitta syriaca, 124.
 Snipe, Cape Painted, 15.
 —, Double, 107.
 —, Ethiopian, 68, 107.
 Sombre Bulbul, 79.
 South African Harrier, 100.
 — — Kestrel, 95.
 — — Pochard, 105.
 — — Shelduck, 104.
 — — Stone Chat, 86.
 Sparrow, Diamond, 114.
 —, House, 124.
 —, Rock, 124.
 —, Spanish, 124.
 Sparrow Hawk, African, 100.
Spatula capensis, 105.
 — *clypeata*, 126.
 Spoonbill, African, 105.
Sporopipes squamifrons, 2.
 Spotted Eagle-Owl, 11, 93.
Spreo bicolor, 75.
 Squacco Heron, 126.
 Square-tailed Drongo, 92.
 Staudard-winged Nightjar, 117.
 Starling, Pied, 75.
 —, Plum-coloured, 109.
 —, Purple-winged, 124.
 —, Red-shouldered, 76.
 —, —, Lesser, 76, 109, 112.
 —, Red-winged, 74.
 —, Wattled, 74.
Stephanibyx coronata, 15, 121.
Sterna caspia, 125.
 — *fluviatilis*, 125.
 — *minuta*, 125.
 Stilt, Black-winged, 40, 125.
 Stint, Little, 68, 125.
 Stork, Black, 102, 119.
 —, White, 61, 67, 119.
Strigidae, 10.
 Stripe-breasted Swallow, 66, 68.
 — —, Lesser, 68.
 Striped Kingfisher, 37.
Strix capensis, 10.
 — *flammea*, 10, 92, 126.
Struthio australis, 121.
Sturnus poltaratskyi, 125.
 — *porphyronotus*, 125.
 — *purpurascens*, 124.
 Sunbird, Black, 6.

- Sunbird, Double-collared, 5.
 —, Malachite, 5.
 —, Scarlet-chested, 5.
 —, White-breasted, 109.
 Swallow, European, 61, 65, 66, 69,
 110, 125.
 —, Lesser Stripe-breasted, 68.
 —, Rufous-breasted, 66, 68, 110.
 —, Stripe-breasted, 66, 68.
 — -tailed Bee-eater, 118.
 —, White-throated, 65, 66, 68.
 Swempi, 20.
 Swift, European, 66, 126.
 —, Pallid, 124.
Sylvia atricapilla, 127.
 — *cinerea*, 125.
 — *hortensis*, 125.
 — *melanocephala*, 124.
 — *melanothorax*, 124.
 — *rueppelli*, 124.
Sylviidae, 7.
- T.
- Tarsiger silens*, 88.
 — *stellatus*, 87.
 Tawny Eagle, 97, 111.
 Teal, Hottentot, 105.
 —, Red-billed, 105.
Telephonus australis, 42.
Tephrocorys cinerea, 4, 44.
 Tern, Caspian, 125.
 —, Common, 125.
 —, Little, 125.
 —, Whiskered, 66, 107.
 —, White-winged, 125.
Terpsiphone perspicillata, 90, 110,
 117.
Tetrapteryx paradisea, 44.
Thalassornis leuconotus, 105, 120.
Thamnolea urnotti, 116.
 — *cinnamomeiventris*, 43.
 Three-collared Plover, 15, 106.
 Thrush, Cabanis's, 83.
 —, Cape, 82.
 —, — Rock, 83.
- Thrush, Ground-scraper, 81.
 —, Sentinel, 84.
 —, Song, 124.
 Tinktinkies, 2.
Tinnunculus naumanni, 96.
 — *rupicoloides*, 95.
 — *rupicolus*, 94.
 Tit Babbler, 80.
 —, Black, 114.
Totanus calidris, 64, 125.
 — *glareola*, 68, 107, 121, 125.
 — *hypoleucus*, 68, 107, 111, 125.
 — *littoreus* = *nebularius*, 61, 64, 67,
 106, 125.
 — *ochropus*, 125.
 — *stagnatilis*, 125.
Trachyphonus cafer, 119.
Tricholema leucomelas, 9.
Tringa minuta, 68, 125.
 — *subarquata*, 125.
Troglodytes parvulus, 123.
Turacus corythair, 9, 129.
Turdus cabanisi, 83.
 — *libonyanus*, 116.
 — *litsipsirupa*, 81.
 — *merula*, 124.
 — *nusicus*, 124.
 — *olivaceus*, 82.
 Turnstone, 106.
 Turtle Dove, Cape, 120.
 — —, Collared, 124.
Turtur capicola, 12, 44, 120.
 — *semitorquatus*, 51.
 — *senegalensis*, 12.
- U.
- Urolestes melanoleucus*, 115.
- V.
- Vidua principalis*, 2.
Vinago delalandii, 12.
Vultur monachus, 124.
 Vulture, Black (African), 126.

Vulture, Black (European), 124.
 —, Common, 128.

W.

Wagtail, Black-headed, 124.
 —, Blue-headed, 125.
 Wahlberg's Eagle, 97.
 Warbler, African Reed, 81.
 —, Babbling Reed, 116.
 —, Black-headed, 124.
 —, Dusky-faced Bush, 116.
 —, Garden, 125.
 —, Great Reed, 125.
 —, Olivaceous, 124.
 —, Palestine, 124.
 —, Rüppell's, 124.
 —, Sedge, 125.
 —, Smith's Grass, 110, 116, 125,
 126.
 —, Whitethroat (European), 125.
 Warblers, 7.
 Wattled Crane, 107.
 — Starling, 74.
 Waxbill, Black-faced, 2.
 —, Common, 113.
 —, Orange-breasted, 3, 113.
 —, Red-breasted, 2.
 —, Violet-eared, 50.
 Weaver Bird, Masked, 113.
 — —, Red-billed, 2.
 — —, Red-headed, 113.
 — —, Scaly-feathered, 2.
 — Finch, Bar-breasted, 3.
 Wheatear, Capped, 87.
 —, European, 126.

Whimbrel, 131.
 Whiskered Tern, 66, 107.
 White-backed Duck, 105, 121.
 — — Vulture, 101.
 — -crowned Shrike, 77.
 — -faced Duck, 104.
 — -flanked Flycatcher, 90.
 — -starred Bush Robin, 87.
 — Stork, 61, 67.
 — -throat, European, 125.
 — -throated Swallow, 65, 66, 68.
 Widow Bird, Long-tailed, 2.
 — —, Pin-tailed, 2.
 — —, Red-collared, 2, 114.
 Wigeon, Cape, 16, 44.
 Willow Wren, 68, 116.
 Wood Ibis, 103.
 Woodpecker, Cardinal, 9.
 Wood-Pigeon, Green, 12.
 Wood Sandpiper, 68, 107.
 Wryneck, South African, 9.

Y.

Yellow-bellied Bulbul, 80.
 — -billed Duck, 104.
 — — Egret, 103.
 — — Hornbill, 118.
 — — Kite, 68, 98, 119.

Z.

Zosterops capensis, 7.
 — *virens*, 7.
 Zuiker-bekkie, 5.

THE JOURNAL

OF THE

SOUTH AFRICAN ORNITHOLOGISTS' UNION.

EDITED BY
ALWIN HAAGNER, F.Z.S., etc.,
 ASSISTED BY
Dr. J. W. B. GUNNING and B. C. R. LANGFORD.

CONTENTS.

	PAGE
I. Some Remarks on the Protective Resemblance of South African Birds. By ALWIN HAAGNER, F.Z.S., M.B.O.U. (Plates I. & II.)	1
II. The Nesting and other Habits of the Cape Widgeon (<i>Nettion capense</i>). By Lieut. H. A. P. LITTLEDALE, 1st K.O.Y.L.I. (Plate III.)	16
III. Notes on some Game Birds of South Africa. By D. F. GILFILLAN	19
IV. On the South African Species of <i>Centropus</i> . By Dr. J. W. B. GUNNING and A. HAAGNER	36
V. On the Nidification of the Striped Kingfisher (<i>Halcyon chelicuti</i>). By ALFRED D. MILLAR, Col. M.B.O.U.	37
VI. Occasional Notes. (Plate IV.)	40
VII. Short Notices of Ornithological Publications	46
VIII. Obituary: Dr. RUDOLF BLASIUS and Mr. HOWARD SAUNDERS	54
IX. Notes on Practical Collecting	58

PUBLISHED BY
THE UNION IN PRETORIA, TRANSVAAL.

LONDON AGENT:
R. H. PORTER, 7 PRINCES STREET, CAVENDISH SQUARE, W.

GENERAL NOTICES.

THE address of the Hon. Secretary of the Union is :—

A. HAAGNER, Esq.,
Dynamite Factory,
Modderfontein,
Near Johannesburg,
Transvaal.

The address of the Hon. Treasurer of the Union is :—

NEWTON SPICER, Esq.,
P.O. Box 557,
Pretoria, Transvaal.

ANY person desirous of joining the Union should communicate with the Hon. Secretary.

THE Annual Subscription is £1 1s., and all Members of the Union receive a free copy of all its publications.

THE Funds of the Union are devoted mainly to the publication of this Journal.

SUBSCRIPTIONS for 1908 are now due and should be forwarded to the Hon. Treasurer.

MEMBERS are requested to be good enough to notify to the Hon. Secretary any change of address, so that prompt despatch of notices and publications may be ensured.

COPIES of the Journal can be purchased at the rate of 4s. per copy to Non-Members, and 2s. 6d. to Members, except No. 1, Vol. III., price 6s. & 4s. respectively.

Cloth covers to take Vols. I. and II. *in one*, price 1s. 6d., post-free; Vol. III. also 1s. 6d. Obtainable from the HON. SECRETARY, or from R. H. PORTER, 7 Princes Street Cavendish Square, London, W.

THE JOURNAL
OF THE
SOUTH AFRICAN ORNITHOLOGISTS' UNION.

CONTENTS.

	PAGE
X. The Report of the Committee for Migration for the Years 1906 and 1907	61
XI. A Description of some Portion of the Oological Collection of South African Birds' Eggs in the Transvaal Museum, Pretoria. By JOHN A. BUCKNILL, M.A., F.Z.S., M.B.O.U.	69
XII. Some Notes on the Wildfowl and Water-Birds of Matatiele, East Griqualand. By C. G. DAVIES, C.M. Riflemen	102
XIII. (a). On the Nesting of <i>Podica petersi</i> , Hartl. (Peters' Finfoot) in Southern Rhodesia. By ERNEST C. CHUBB, F.Z.S. (Plate V.).....	107
XIII. (b). On Birds collected and observed at the Khami River, Matabeleland. By ERNEST C. CHUBB, F.Z.S.	108
XIII. (c). On Birds collected in Northern Matabeleland. By ERNEST C. CHUBB, F.Z.S.....	112
XIV. Occasional Notes	122
XV. Short Notices of Ornithological Publications	133

PUBLISHED BY
THE UNION IN PRETORIA, TRANSVAAL.

LONDON AGENT:
R. H. PORTER, 7 PRINCES STREET, CAVENDISH SQUARE, W.

GENERAL NOTICES.

THE address of the Hon. Secretary and Treasurer of the Union is :—

A. HAAGNER, Esq.,
Transvaal Museum,
Box 413,
Pretoria,
Transvaal.

ANY person desirous of joining the Union should communicate with the Hon. Secretary.

THE Annual Subscription is £1 1s., and all Members of the Union receive a free copy of all its publications.

THE Funds of the Union are devoted mainly to the publication of this Journal.

SUBSCRIPTIONS for 1908 are now due and should be forwarded to the Hon. Treasurer.

MEMBERS are requested to be good enough to notify to the Hon. Secretary any change of address, so that prompt despatch of notices and publications may be ensured.

COPIES of back numbers of the Journal can be purchased at the rate of 4s per copy to Non-Members, and 2s. 6d. to Members, except No. 1, Vol. III., price 6s. & 4s. respectively.

Cloth covers to take Vols. I. and II. *in one*, price 1s. 6d., post-free; Vol. III. also 1s. 6d. Obtainable from the HON. SECRETARY, or from R. H. PORTER, 7 Princes Street, Cavendish Square, London, W.

THE JOURNAL
OF THE
SOUTH AFRICAN ORNITHOLOGISTS' UNION.

CONTENTS.

TITLEPAGE, INDEX, ETC. TO VOL. IV.

PUBLISHED BY
THE UNION IN PRETORIA, TRANSVAAL.

LONDON AGENT:
R. H. PORTER, 7 PRINCES STREET, CAVENDISH SQUARE, W.

GENERAL NOTICES.

THE address of the Hon. Secretary and Treasurer of the Union is :—

A. HAAGNER, Esq.,
Transvaal Museum,
Box 413,
Pretoria,
Transvaal.

ANY person desirous of joining the Union should communicate with the Hon. Secretary.

THE Annual Subscription is £1 1s., and all Members of the Union receive a free copy of all its publications.

THE Funds of the Union are devoted mainly to the publication of this Journal.

SUBSCRIPTIONS for 1909 are now due and should be forwarded to the Hon. Treasurer.

MEMBERS are requested to be good enough to notify to the Hon. Secretary any change of address, so that prompt despatch of notices and publications may be ensured.

COPIES of back numbers of the Journal can be purchased at the rate of 4s. per copy to Non-Members, and 2s. 6d. to Members, except No. 1, Vol. III., price 6s. & 4s. respectively.

Cloth covers to take Vols. I. and II. *in one*, price 1s. 6d., post-free; Vol. III. also 1s. 6d. Obtainable from the HON. SECRETARY, or from R. H. PORTER, 7 Princes Street, Cavendish Square, London, W.

EDITORIAL NOTICES.

THE Editors invite contributions on South African Ornithology from all students. These should, if possible, be typewritten.

Drawings (which, for the purpose of ease of reproduction, should be, as far as possible, in line and without wash) and photographs from nature will be gladly welcomed. Original MSS., drawings, and photographs will, if desired, be returned, after publication, to their owners.

The Editors will be pleased to receive from contributors short extracts from concurrent literature or accounts of the Meetings of Associations dealing with South African Ornithology or of general interest to the Members of the Union.

All documents intended for publication should be forwarded to A. HAAGNER, Esq., Transvaal Museum, Box 413, Pretoria.

This Journal will be issued as often as the funds of the Union permit, subject, of course, to there being sufficient matter suitable for publication.

Fifteen copies of every paper published in the Journal will be reserved for the author free of charge.

The Editors will be pleased to answer, to the best of their ability, through the medium of this Journal, any questions relating to ornithological matters, and to identify ornithological specimens submitted to them.

In cases where an immediate answer is required, a reply will be forwarded through the post if a stamped addressed envelope is enclosed with the enquiry.

The Editors respectfully draw attention to the necessity for support to the Illustration Fund, and invite subscriptions thereto.

THE SOUTH AFRICAN ORNITHOLOGISTS' UNION.

PRESIDENT.

J. E. DUERDEN, PH.D., M.Sc.

(Professor of Zoology, Rhodes Univ. College, Grahamstown, C.C.,
and Keeper Zoological Department, Albany Museum.)

VICE-PRESIDENTS.

J. W. B. GUNNING, M.D., F.Z.S.

(Director Transvaal Museum and Zoological Gardens, Pretoria.)

A. D. MILLAR, Col.M.B.O.U. (Durban.)

L. PÉRINGUEY, D.Sc., F.Z.S., &c.

(Director S.A. Museum, Cape Town.)

HON. SECRETARY.

ALWIN HAAGNER, F.Z.S., M.B.O.U.

(Transvaal Museum, Box 413, Pretoria, Transvaal.)

HON. TREASURER.

NEWTON SPICER.

(P.O. Box 557, Pretoria, Transvaal.)

EDITORIAL COMMITTEE.

Dr. J. W. B. GUNNING.

A. K. HAAGNER.

B. C. R. LANGFORD.

MEMBERS OF COUNCIL.

JOHN WOOD. (Cape Colony.)

A. DUNCAN. (Transvaal.)

C. McG. JOHNSTON. (Orange River Colony.)

Dr. J. E. BRISCOE. (Natal.)

GUY A. K. MARSHALL, F.Z.S. (Rhodesia.)

J. P. MURRAY. (Basutoland.)

C. POGGÉ. (German S.W. Africa.)

P. A. SHEPPARD. (Portuguese S.E. Africa.)

EDITORIAL NOTICES.

THE Editors invite contributions on South African Ornithology from all students. These should, if possible, be typewritten.

Drawings (which, for the purpose of ease of reproduction, should be, as far as possible, in line and without wash) and photographs from nature will be gladly welcomed. Original MSS., drawings, and photographs will, if desired, be returned, after publication, to their owners.

The Editors will be pleased to receive from contributors short extracts from concurrent literature or accounts of the Meetings of Associations dealing with South African Ornithology or of general interest to the Members of the Union.

All documents intended for publication should be forwarded to A. HAAGNER, Esq., Transvaal Museum, Box 413, Pretoria.

This Journal will be issued as often as the funds of the Union permit, subject, of course, to there being sufficient matter suitable for publication.

Fifteen copies of every paper published in the Journal will be reserved for the author free of charge.

The Editors will be pleased to answer, to the best of their ability, through the medium of this Journal, any questions relating to ornithological matters, and to identify ornithological specimens submitted to them.

In cases where an immediate answer is required, a reply will be forwarded through the post if a stamped addressed envelope is enclosed with the enquiry.

The Editors respectfully draw attention to the necessity for support to the Illustration Fund, and invite subscriptions thereto.

THE SOUTH AFRICAN ORNITHOLOGISTS' UNION.

PRESIDENT.

J. E. DUERDEN, Ph.D., M.Sc.

(Professor of Zoology, Rhodes Univ. College, Grahamstown, C.C.,
and Keeper Zoological Department, Albany Museum.)

VICE-PRESIDENTS.

J. W. B. GUNNING, M.D., F.Z.S.

(Director Transvaal Museum and Zoological Gardens, Pretoria.)

A. D. MILLAR, Col.M.B.O.U. (Durban.)

L. PÉRINGUEY, D.Sc., F.Z.S., &c.

(Director S.A. Museum, Cape Town.)

HON. SECRETARY.

ALWIN HAAGNER, F.Z.S., M.B.O.U.

(Transvaal Museum, Box 413, Pretoria, Transvaal.)

HON. TREASURER.

NEWTON SPICER.

(P.O. Box 557, Pretoria, Transvaal.)

EDITORIAL COMMITTEE.

Dr. J. W. B. GUNNING.

A. K. HAAGNER.

B. C. R. LANGFORD.

MEMBERS OF COUNCIL.

JOHN WOOD. (Cape Colony.)

A. DUNCAN. (Transvaal.)

C. McG. JOHNSTON. (Orange River Colony.)

Dr. J. E. BRISCOE. (Natal.)

GUY A. K. MARSHALL, F.Z.S. (Rhodesia.)

J. P. MURRAY. (Basutoland.)

C. POGGÉ. (German S.W. Africa.)

P. A. SHEPPARD. (Portuguese S.E. Africa.)

EDITORIAL NOTICES.

THE Editors invite contributions on South African Ornithology from all students. These should, if possible, be typewritten.

Drawings (which, for the purpose of ease of reproduction, should be, as far as possible, in line and without wash) and photographs from nature will be gladly welcomed. Original MSS., drawings, and photographs will, if desired, be returned, after publication, to their owners.

The Editors will be pleased to receive from contributors short extracts from concurrent literature or accounts of the Meetings of Associations dealing with South African Ornithology or of general interest to the Members of the Union.

All documents intended for publication should be forwarded to A. HAAGNER, Esq., Dynamite Factory, Modderfontein, Transvaal.

This Journal will be issued as often as the funds of the Union permit, subject, of course, to there being sufficient matter suitable for publication.

Fifteen copies of every paper published in the Journal will be reserved for the author free of charge.

The Editors will be pleased to answer, to the best of their ability, through the medium of this Journal, any questions relating to ornithological matters, and to identify ornithological specimens submitted to them.

In cases where an immediate answer is required, a reply will be forwarded through the post if a stamped addressed envelope is enclosed with the enquiry.

The Editors respectfully draw attention to the necessity for support to the Illustration Fund, and invite subscriptions thereto.

THE SOUTH AFRICAN ORNITHOLOGISTS' UNION.

PRESIDENT.

J. E. DUERDEN, PH.D., M.Sc.

(Professor of Zoology, Rhodes Univ. College, Grahamstown, O.C.,
and Keeper Zoological Department, Albany Museum.)

VICE-PRESIDENTS.

J. W. B. GUNNING, M.D., F.Z.S.

(Director Transvaal Museum and Zoological Gardens, Pretoria.)

A. D. MILLAR, Col.M.B.O.U. (Durban.)

L. PÉRINGUEY, D.Sc., F.Z.S., &c.

(Director S.A. Museum, Cape Town.)

HON. SECRETARY.

ALWIN HAAGNER, F.Z.S., M.B.O.U.

(Dynamite Factory, Modderfontein, near Johannesburg, Transvaal.)

HON. TREASURER.

NEWTON SPICER.

(P.O. Box 557, Pretoria, Transvaal.)

EDITORIAL COMMITTEE.

Dr. J. W. B. GUNNING.

A. K. HAAGNER.

B. C. R. LANGFORD.

MEMBERS OF COUNCIL.

JOHN WOOD. (Cape Colony.)

A. DUNCAN. (Transvaal.)

C. McG. JOHNSTON. (Orange River Colony.)

Dr. J. E. BRISCOE. (Natal.)

GUY A. K. MARSHALL, F.Z.S. (Rhodesia.)

J. P. MURRAY. (Basutoland.)

C. POGGÉ. (German S.W. Africa.)

P. A. SHEPPARD. (Portuguese S.E. Africa)

1908 11-52049

10 1932

AMNH LIBRARY



10012603