— THE —

South Australian Ornithologist.

VOL. VII.] 1st JANUARY, 1923. [PART 1.

The South Australian Ornithological Association.

MONTHLY PROCEEDINGS.

Report of the meeting held in conjunction with the University Science Club on 28th July, 1922, at 8 p.m., in the History Lecture Room at the University of Adelaide. Dr. A. A. Lendon in the chair.

The members of the South Australian Ornithological Association present were Professor Cleland, Drs. A. M. Morgan and W. Ray, Captain S. A. White, and Messrs. A. Crompton, R. Crompton, F. M. Angel, J. W. Goodale, J. W. Mellor, F. E. Parsons, S. Sanders, W. W. Weidenbach, G. Weidenhofer, and J. Sutton, and Mr. and Mrs. Keith Ashby.

The Chairman mentioned that the subject for the evening was "The Flight of Birds."

Professor A. T. Strong quoted extracts from the classical poets, and mentioned that there was nothing of a scientific nature in any of the ancient poets' works except in the case of Virgil, who says that Owls and Kestrels devoured mice, etc., and that Thrushes ate mites and grubs. Some of the French poets describe the flight of birds well. Schiller, in his "Faust," describes how birds flying above awaken in man great things and cause him to look ever upward. Shakespeare, in "Macbeth," uses the word "sealing," which the Professor showed meant "blinding so as to make the birds fly high."

Professor J. B. Cleland (President of the S.A.O.A.) addressed the meeting as follows:—"A recent writer in 'Nature' had suggested that feathers in the beginning first arose by the fraying of the edges of the protecting scales of lizard-like creatures. Such fraying when more exaggerated led to a body-covering which retained the heat of metabolism, and

thus creatures appeared with a temperature higher than the surrounding air. Eventually, with modification of the fore limbs, the first essays at flight occurred. The ornithological point of view of the flight of birds was to indicate the various ways in which birds rise and maintain themselves in the air; to point out the differences in the shape of the wings, etc.; to consider the feathery coverings of the birds as factors in flight; and to discuss the various forms assumed by flocks of birds in flight. To the physicists we looked for explanations of the mechanics of flight. A few weeks ago in coming from New Zealand I spent some delightful hours in watching the flight of Albatrosses, and came to the conclusion that the following factors enabled them to make progress without frequently flapping their wings:—Firstly, the Albatross starts to fly, after having alighted in the water, like any other bird, by flapping its wings and gradually rising as impetus is gained. The first physical force is thus impetus from wing motion. The next factor is the force of the wind, either natural or artificially produced by the passage of the bird through the air, playing upon the large surface of the outstretched wings. Then by the principles of the parallelogram of forces the bird will rise. When the original impetus begins to fail, the wings may flap a little again, or the bird, if sufficiently high, may use its weight, of say 20 pounds, in falling by gravity and so obtain once more the necessary impetus and be uplifted again by the wind. By magnificent manoeuvring and the skilful employment of the three forces—initial impetus, wind, and gravity—the Albatrosses were enabled to maintain their flight of from 15 to 20 miles per hour with perfect ease and with only an occasional flap of their mighty wings. Let us compare the flight of an Albatross with the sailing of a yacht. When the wind impinges on a bellying sail, or even a sail nearly taut there must be a cone of relatively "dead" air immediately in front of the concavity of the sail, and as the sail is not perforated this air can only escape by slipping at the sides. The fresh incoming air must strike this cone and part of its force be dissipated by being turned aside obliquely. May I ask these questions of our physics members present: Will there be, per unit area of actual sail exposed to the wind, a greater amount of force received for propelling the ship if the sail is suitably fenestrated? Given a certain area of canvas, will the ship be propelled faster if the canvas is made into a lattice-work with broad bars and suitable fenestrations than if it is used intact? The point is of some interest, inasmuch as the periphery of the wings being occupied by flight

feathers allows the air in this situation to percolate more or less freely through, and thus reduce the cone of dead air. Still another aspect suggests itself. The wind comes in gusts and eddies, 'it bloweth where it listeth, and man cannot tell whence it cometh,' much less the bird. Varying each moment in strength and direction, it is obviously essential that the bird, making use of the wind force, should appreciate immediately any change of strength or direction, and accommodate the wings accordingly. May I suggest that the flight feathers, if provided round the sheaths of the feather follicles with adequate sense organs, would be admirably fitted to transmit impressions to the central nervous system? The nervous system could read such impressions and carry out at once the necessary adjustments. Could an Albatross fly without frequently flapping its wings if these were deprived of feathers? Could any bird do so? You have no doubt heard of the famous nonogenarian, 'Cocky Bennett,' of Tom Ugly's Point, near Sydney, who, near the end of his days, with but one feather left, would yet flap his wings and say, 'My God, I'll fly; my God, I'll fly.' But that is only the word of a cockatoo, and no one seems to have actually seen him do so!"

Dr. A. M. Morgan exhibited a number of skins of birds, from the Museum, to show the correlation of the shape of the bird's wings to the flight of the bird, the family to which the bird belongs being of only secondary importance in that respect. He said that all swift-flying birds have long wings, the tail being apparently of no object, mostly being short. The Spine-tailed Swift (*Chaetura caudacuta*) was a good example of the above, as it rarely settled. The Pratincole (*Stiltia isabella*) had wings like the Swift, and, although a ground bird, had at times to fly long distances to water. The Marsh Tern (*Chlidonias leucopareia*), although totally unrelated to either of the above, had similar-type wings. The Curlew Sandpiper (*Erolia ferruginea*) breeds in the tundras of Northern Siberia, and migrates to Australia in the northern winter, but is not known to settle *en route*. The Honey-eaters are birds of moderate flight, as is shown by the wings becoming more rounded in shape. The genus *Pomatostomus*, or Babblers, make only short flights, and the first, second, third, fourth, and fifth primary feathers of their wings are the same length. The Bristle Bird (*Sphenura brachyptera*) is another example of the same thing. He pointed out, however, that the above apparently was not always the case, and gallinaceous birds may be an exception, as some of them migrate long distances, but they probably rest on the way and have short, swift flights.

The shortness of wing is compensated by the development of the breast muscles, which makes them good table birds. Pigeons come under the same category. In Penguins the wing is almost a fin. They actually fly under water, not like a Cormorant or other diving birds, which work with their legs. The Falcon has the wings of a swift-flying bird, as in the Pratincole, and has also a large breast development. It is the fastest-flying bird in Australia, and is the quickest in getting up pace. Kites and Soaring Hawks, when the wings are spread, have the wings serrated at the edges so that a certain amount of air can get through. In night-flying birds, as in the case of other birds, the relationship does not greatly influence the wings, etc. Those birds have soft, frayed feathers, which give a silent flight. The Bookbook Owl and Nightjar are quite different birds, but have the same feather development. The speaker was of opinion that an Albatross always fell when flying with the wind, and rose when flying against it. Most birds, especially of the size of the Magpie or larger bird, took advantage of the wind when rising, and when alighting on a branch fly to it below the level of the branch, rise above it, and then drop on to it.

Captain S. A. White mentioned that on his return journey on the trans-Australia trip he was able to observe a striking example of the speed at which birds fly. Pelicans were clumsy in rising, but once up were wonderfully speedy in the air. When passing along the River Darling at a speed of, say, 35 to 40 miles in the motor cars, a flock of Pelicans was seen following the river round, and although the road was very much shorter than following the windings of the river, these birds with only an occasional flap of the wings beat the cars easily.

Sir Douglas Mawson said that during his latest trip to the Antarctic he took the wing and body spread and weight of many birds. The results were—

Giant Petrel (soars), average 3.5 lb. per square foot of area.

Albatross (soars), average 2.4 lb.

Antarctic Petrel (soars), average 2.1 lb.

Skua (occasionally flaps), average 1.6 lb.

Snow Petrel (flaps noticeably, but soars in the wind), average 1.1 lb.

Wilson Petrel (flaps a great deal), average 0.6 lb.

Compared with these—

English Sparrow, average 0.4 lb. per square foot of area.

European Wild Goose, 1.7 lb.

Whilst a bat averages 0.1 lb.

He explained that the birds of Antarctica, where strong winds are more or less continually blowing, either soar on the wind or, having given up flight, live in the water. The latter are represented by the Penguins, who travel at the rate of perhaps 30 miles per hour under water when feeding. When Sea Leopards are after them they jump considerable distances in the air. He had noticed the narrowness of the wing of the Albatross, and the curved shape of the front of the wing no doubt has a considerable influence on its flight.

Professor Kerr Grant said he agreed with Professor Cleland that birds are peculiarly endowed with nerves to note the change of direction of the air, and are able to make use of the changes. Air does not move in a steady stream in any one direction, curling and eddying very much; and birds, especially soaring ones, are able to pick out upward from downward currents. This is demonstrated by Gulls, who, when they are following a ship, do so, not immediately behind, but some 30 yards away, where the air which is drawn down by the passage of the ship once more rises. He showed that narrow wings are quite ample in swift-flying birds, for the air in striking the fore part of the wing is turned down, and any air moving so as to strike the back part would be interfered with and also turned down, and so be of no use to the bird for flight. Quails, mentioned by Dr. Morgan as fast fliers, flap their wings exceedingly quickly, as much as 50 times to the second. In doing so they produce a musical note by which the number of vibrations of the wings could be approximately gauged.

Mr. Rex Parsons gave interesting particulars of how the Handley-Page Aeroplane Company was experimenting with the fenestration of aeroplane wings, and were constructing them made up of longitudinal sections, so that the air, after striking the wing, could escape between the sections, and so avoid fouling the lower stratum of air, the arrangement of the several sections being somewhat similar to those in the well-known Venetian blind. This type of wing construction, when tested, showed a considerable increase in the lifting power in pounds per square foot of wing surface.

The following extract is from the London "Times Weekly" with regard to the recent sail-planing flights at Clermont-Ferrand, in France:—

"M. R. Quinton, vice-president of the French Ligue Aeronautique, is bold enough to describe certain

practical uses of the art which he expects to see before long. He thinks that motorless flying should become rapidly practicable in tropical countries and in mountainous regions. His argument is based frankly on the observed sail-planing methods of Vultures in such countries as Egypt and Morocco and of Eagles in Switzerland.

"The higher question of practicability, according to M. Quinton, depends on the prevalence of ascending air currents, and these are common in hot climates and among mountains. In flat lands of the tropics hot air rises in columns from the earth, and it has been shown that Vultures use these ascending currents upwards in one column as long as it is serviceable, and then pass on to another. In mountains the upward air movement is due to another cause. There the current tends to follow the configuration of the land. The problem is how to make use of these natural currents.

"What birds can do in the way of 'sail-planing' man can do. M. Quinton says that in Egypt he has himself seen the Eagle rise 1,968 feet in 45 seconds. Vultures and Eagles in such countries float for a whole day, travelling 300 to 500 miles at 25 to 30 miles an hour. They cross Egypt without a single beat of wing. There is no secret about their general mechanism. It is genuine 'sail-planing.'"

In the Melbourne "Argus" of 4th November last, on the subject of "The Problems of Flight," the following is of interest:—

"Mr. H. J. Nordman, a member of the Long Island Flight Association, who has made a close study of the flight of Vultures and American Golden Eagles, says in an article contributed to the 'Aerial Age Weekly,' that it is these great soaring birds which will eventually lead man to the solution of soaring flight, for it is their mode of flight that solves the problem of remaining in the air with the least expenditure of force.

"'Let us consider the construction of the Vulture,' Mr. Nordman writes. 'His weight is very great, his wings immense, both in length and breadth; his large proportional surface sustains him, and his great mass stores up momentum. So we see him after a few wing-beats at once begin to soar, climbing up in the air and floating there with no expenditure of force, save for the start and for guidance. Certain species of Vultures, particularly the larger, upon a windy day, can actually leave their perch in the morning, travel many miles, spend the whole day in the air, and get back to their perch at night without a single beat of their wings.

"'This is the way that a Vulture spends his day: The larger species, if they have neither eggs nor young ones, have spent the night perched among rugged or inaccessible rocks, where they gather for shelter from the wind. The Turkey-Buzzards and the Egyptian Vultures have been roosting in the lower rocks; they are less fierce and much more intelligent. The sun comes out and dries the dew collected on their feathers. The Vultures stretch their wings, limber up the joints, and trim the growing quills with all the care that the maintenance of an essential organ needs. About seven o'clock there are many flappings of the great wings, but without quitting the perch; then they sink their heads between their shoulders and resume their sinister, forbidding look. Between eight and nine o'clock the breeze begins to rise. Once in a while a Vulture glances into the valley through those magnificent eyes, unique for their power, then, with four or five beats of wing, he launches into space. He descends some 50 yards on rigid wings, and is then in full sailing flight. The smaller species, who are earlier risers, are already at work and searching for food.

"'The large Vultures sail at heights which vary with the species. The Tawny Vultures of South America generally keep at elevations of 500 or 600 yards in the air. They are scarcely visible from the ground. The Arrian Vultures and the Condors usually float much higher; they become quite invisible.'

"These great soarers sustain themselves most easily in a light wind—say, one blowing at 11 miles an hour. Mr. Nordman found that at such a wind velocity the Egyptian Vulture held his wings at an even straight line, slightly bringing forward the tips of his pinions; the Tawny Vulture, however, brought them so much forward that the angle produced in front was 165 deg. So far as possible all gliding and soaring was done without any flapping. Only in a dead calm did they beat the air with their wings. A dead calm, however, seldom occurs; and as the slightest breeze suffices to sustain them, they can keep afloat for the greater part of the time with hardly any effort. If their wings are wet, however, they make very poor flying; and in a severe gale these aerial navigators seek shelter just as a ship does when this is possible. Mr. Nordman thinks that this helplessness in high wind is on account of the great breadth of their wings. Birds with relatively narrow wings (apparently he does not refer to wing spread), he says, can fly with ease in high winds, and he instances Gulls, Stormy

Petrels, and the Albatross, which evidently enjoy themselves in a roaring gale."

SEPTEMBER.

Minutes of meeting held at Royal Society's Rooms at 8 p.m. on Friday, 29th September, 1922. There were present Messrs. F. M. Angel (in the chair), A. Crompton, R. Crompton, M. S. Hawker, J. Neil McGilp, E. S. Paterson, W. Weidenbach, and J. Sutton, and Dr. A. M. Morgan. Apologies for non-attendance were received from Professor J. B. Cleland (through indisposition) and Mr. F. E. Parsons (through absence from the State). Mr. J. W. Goodale was duly elected as a member.

The complete set of "The Emu" owned by the Association has been bound, and was exhibited to the members present. "The S.A. Ornithologist" is to be bound later.

The first and second essays in the S.A.O.A. Bird Competition amongst the schools were read to members, and it was decided to have the essay which was awarded the first prize published in the next (October) number of "The S.A. Ornithologist."

Mr. W. Weidenbach explained his proposal to issue maps to show the distribution of birds in each month in this State. After discussion the subject was held over for further decision.

A general talk on bird matters then took place, and the meeting adjourned at 9.25 p.m.

OCTOBER.

Minutes of meeting held at Royal Society's Rooms on Friday, 27th October, 1922, at 8 p.m. The President (Professor J. B. Cleland) in the chair, and the following were present:—Mr. and Mrs. Keith Ashby, Messrs. Edwin Ashby, R. C. Beck, A. Crompton, R. Crompton, M. S. Hawker, J. W. Mellor, F. E. Parsons, E. S. Paterson, S. Sanders, G. Weidenhofer, and J. Sutton, and Dr. A. M. Morgan.

Mr. Edwin Ashby, who was warmly welcomed after his trip to Great Britain and America, gave a lecture on English Wild Birds. During his visit to Great Britain an educational department there enlisted his services, and he addressed a large number of boarding-schools throughout England on "Australian Fauna." He was asked to lecture in the London County Schools, but had to cancel that owing to shortness of time. He chiefly directed attention to the Mound-building Birds, Bower Birds, and the Lyre Bird, and exhibited, as well as

other skins, 34 species of Parrots peculiar to Australia. These last-named were a never-failing source of wonder to the scholars and others. The lecturer described a number of his walks after birds, particularly along the Pilgrims' Way—London to Canterbury; at a famous bird resort, "Little Frensham Pond," near Farnham, in Surrey; and also a visit to the coast of North Cornwall, near Padstow. Whenever he got a chance in the provinces between his addresses he looked for the fauna about the place. When the "Narkunda," the steamer by which he travelled, was in the Mediterranean, between the Italian and African coasts, about 8th April, 1922, little flocks of the Yellow Wagtail were observed all day long migrating from Africa to Europe. He arrived at Plymouth on 21st April. It was winter, and there were no leaves on the trees. The birds seen in his rambles in England were—Little Grebe, Meadow Pipit, Tree Pipit, Mallard, Teal, Jay, Moor Hen, Corn Crake, Buzzard, Kestrel, Peewit or Lapwing, Dunlin, Siskin, Greater Black-backed Gull, Spotted Rail or Crake, Missel Thrush, Common Thrush, Whinchat, Whitethroat, Lesser Whitethroat, Wood Pigeon, Sedge Warbler, Pheasant, Partridge, Tawny Owl, Little Owl, Great Tit, Blue Tit, Long-tailed Tit. The Rock Pipit and Jackdaw were nesting in Cornwall.

Common Swan.—He was just too late to see the Whooper Swan, a migrant that had left Frensham Pond a short time before his arrival.

Crested Grebe.—A pair were on the above pond, and four were watched on their nests on a reservoir near Birmingham.

Heron.—Larger than our Pacific or White-necked Heron.

Redshank.—Has a loud, whistling note.

Wagtail.—Four species—pied, grey, yellow, and white. The second-named has a very long tail. They run, do not hop, and move their tails up and down—not sideways, like our Willie-Wagtail.

Coots.—With white frontal shields, more pronounced than our birds'.

Green Woodpecker.—Has a full, whistling call, not, as described usually, a laugh.

Spotted Woodpecker.—Its nesting hole was perfectly circular, and bored into an apparently solid tree-trunk.

Nightingale.—Heard near Reigate and at King's Langley.

Black-headed Gulls.—Almost as graceful as our Terns, were in thousands in a "rookery," near Wigton, N.B.

Shags.—Fourteen nests were seen in ledges on the sea cliffs. The parent birds were mostly sitting on the eggs, but

in one or two cases the young were hatched and covered with dark grey down. The nests were made of seaweed.

Oyster Catchers.—Were very numerous and nesting on isolated rocks in the sea.

Cormorants.—Show more white in the breeding season than our race of *P. Carbo.*

Wheatear.—Grey and white. Bobs its tail, but also sometimes bobs its whole body by bending its knees (like the Dipper).

Dipper.—Runs under the water after food, and bobs by bending its knees. One nest found, made of moss, situated in a hole near a waterfall.

Coil Bunting, Yellow Bunting, Corn Bunting:—The call of the Yellow Bunting is "A little piece of bread-and-no-cheese;" the Coil Bunting finishes its song at "bread," and the Corn or Common Bunting still further reduces its song.

Common Sandpiper.—The last time the speaker had seen this species was at Dongara, Western Australia, in 1920—a truly extraordinary range of habitat.

Herring Gull.—Is very like our Silver Gull, but much larger in size. Their young in the down were watched on cliffs in Cornwall.

White's Thrush.—Was not seen. It is a rare visitor to Great Britain, and is almost identical with our Mountain Thrush.

Stone Chat.—The word "Chat" is evidently derived from its call, "chut, chut."

Grasshopper Warbler.—Its call is like the noise made by the running out of a fishing-line on a reel.

Garden Warbler and Blackcap.—These two were, at the time Mr. Ashby listened to them, seemingly competing with one another. The former has a full song, but the Blackcap's is louder, but he does not complete his song.

Willow Warbler.—Sings like our Gerygones (Bush Warblers), but the latter are the better songsters.

Chiff Chaff.—Is almost similar in plumage, but it has no song beyond the monotonous "Chiff-chaff."

Jenny Wren.—Has a beautiful, throaty song, with several bars.

Rock Pigeon.—The progenitor of the tame pigeon is now found in very few places in England. Mr. Ashby saw it in the Chedar Cliffs.

Peregrine Falcon.—Is very like our Black-cheeked Falcon. A pair was seen in the Chedar Cliffs, where they were breeding. Attention was called to them by their loud cry of "Chuck-

chuck." After soaring round and round both birds perched on some crags 350 feet overhead, and were watched for some time with the aid of field-glasses.

Cole Tit.—Has a call like sharpening a saw.

Cuckoo.—While in July this bird drops the last syllable of its call, the lecturer heard one bird that said "Cuck-oo-oo-oo," but this is very unusual.

Mr. Ashby gave as his opinion of the song birds that fully half of the volume of song in Great Britain is made by the Common Thrush, and that we have in Australia just as good songsters and as many different kinds of singing birds, and although we have nothing like the Thrush, they in turn have nothing equal to the Butcher Bird. What impressed one in England was the concentration of song, due to the shelter provided by the copses and hedgerows dividing the little fields. He also mentioned that in the Birmingham Museum he saw the skin of the Philip Island Parrot (*Nestor productus*), from Philip Island, close to Norfolk Island. There are only three skins known to science now in existence. This bird was formerly in hundreds on the island. It could not fly, and was killed and eaten by the convicts in the early days of the settlement. The lecturer then exhibited many Humming Birds, and their marvellous colouration was greatly admired.

At the instance of the Chairman, a hearty vote of thanks was accorded to Mr. Ashby for his interesting lecture and later exhibit.

NOVEMBER.

Minutes of meeting held at Royal Society's Rooms at 8 p.m. on Friday, 24th November, 1922. There were present the President (Professor J. B. Cleland, M.D.), in the chair, and Messrs. Edwin and Keith Ashby, A. Crompton, J. W. Mellor, E. S. Paterson, J. Sutton, and W. Weidenbach, and Dr. A. M. Morgan. An apology for absence was received from Mr. F. E. Parsons through illness.

A letter from the Editor-in-Chief of the Australian National Research Council to the President was placed before the meeting. The Hon. Secretary was instructed to get in touch with the Council with regard to exchanging science abstracts for "The S.A. Ornithologist."

After some discussion upon the subject of Bird Maps, the following motions were carried:—"(1) That it is desirable that this Association should undertake the collection of data showing the geographical and seasonal distribution of Australian birds. (2) With this object in view a Sub-Committee comprising the President, Captain S. A. White, Messrs. Edwin

Ashby, J. W. Mellor, and W. Weidenbach, and the Hon. Secretary be appointed to collate such data supplied by members and from other reliable sources, and that the information be tabulated on cards, one for each species, with the eventual object of plotting the distribution on maps. (3) That the Hon. Secretary be empowered to purchase the necessary cards, and be asked with Mr. Weidenbach to ascertain a suitable type of map to employ, with the best means of publishing the results."

Birds of Ooldea and Port Augusta.—Professor Cleland then gave a description of these birds, which is reported in full elsewhere.