

EXHIBITIONS AND NOTICES.

March 21st, 1916.

Dr. S. F. HARMER, M.A., F.R.S., Vice-President,
in the Chair.

The SECRETARY read the following report on the Additions to the Society's Menagerie during the month of February, 1916 :—

The number of registered additions to the Society's Menagerie during the month of February was 36. Of these 30 were acquired by presentation, 5 were received on deposit, and 1 by purchase.

The number of departures during the same period, by death and removals, was 145.

Amongst the additions special attention may be directed to :—

1 Preuss's Cercopitheque (*Cercopithecus preussi*), from the Cameroons, presented by Major Sir George Noble, Bart., F.Z.S., on February 21st.

1 Korin Gazelle (*Gazella rufifrons*), from the Soudan, presented by Capt. William Dyer, on February 24th.

Mr. E. T. NEWTON, F.R.S., F.Z.S., exhibited the pelt and bones of a Black Hare, for which he was under obligation to Mr. G. F. Brooke of Leadenhall Market, who had received it with a large consignment of Brown Hares from Siberia; but, unfortunately, the locality was not known. This hare is of small size and with short rabbit-like ears. The head and back are black excepting only a small white spot on the forehead; and towards the sides there are numerous long hairs with white tips. Lower down upon the sides the fur becomes tawny and passes into white underneath. All the feet, but especially the hinder ones, have light brown hair up the upper parts.

The skull and limb bones show characters agreeing with those of the hare; but in size the animal was intermediate between our common hare and the rabbit.

Mr. D. M. S. WATSON, F.Z.S., gave an account of some observations he had made on the habits and life-history of *Platypus* and *Echidna*.

The Alisphenoid Canal in Civets and Hyenas.

Mr. R. I. Pocock, F.R.S., F.L.S., F.Z.S., Curator of Mammals, gave an exhibition, illustrated by lantern-slides, to show some points connected with the alisphenoid canal in the Viverridæ* and Hyænidæ, and remarked:—

“As is well known, the alisphenoid canal is always absent in the Felidæ (text-fig. 1, A). In the Viverridæ, on the contrary, it is nearly always present, although it is never found in the Mascarene genera *Galidia*, *Galidictis*, and *Salanoia* (text-fig. 1, B), forming the subfamily Galidictinæ, and may be present or absent in *Cynogale* (Cynogalinæ) and *Eupleres* (Euplerinæ), two aberrant genera of Viverridæ. By Mivart, Flower, and authors inspired by them, it is also stated to be variable in its occurrence in *Viverricula*, a genus closely related to *Viverra* and *Genetta*, in which it is always present.

“Examination of the skulls of *Cynogale* and *Eupleres* shows conclusively that the absence of this canal, when it is absent, is due to suppression, complete or partial, of its external bony wall. Nevertheless, when this wall is unossified in these forms, the channel marking the course of the external carotid artery is very apparent. This bony wall is also so short in some Mongooses, e. g. *Crossarchus*, that a comparatively slight defect in ossification would convert the canal into an open channel, such as is seen sometimes in *Cynogale* and *Eupleres*. In *Crossarchus* (text-fig. 1, C, D), *Cynogale*, and *Eupleres*, moreover, the *foramen rotundum* opens alongside the anterior orifice of the alisphenoid canal into the posterior part of the temporal fossa close to the sphenoidal fissure (*foramen lacerum anticum*). In the Galidictinæ the *foramen rotundum* occupies precisely the same position with regard to the sphenoidal fissure. This part of the skull in *Galidictis*, for example, bears a close resemblance to that of *Crossarchus*, except that there is no trace whatever of the alisphenoid canal. Nevertheless, the general likeness alluded to suggests that the absence of the canal in *Galidictis* may be due to the complete suppression of its outer wall (text-fig. 1, B).

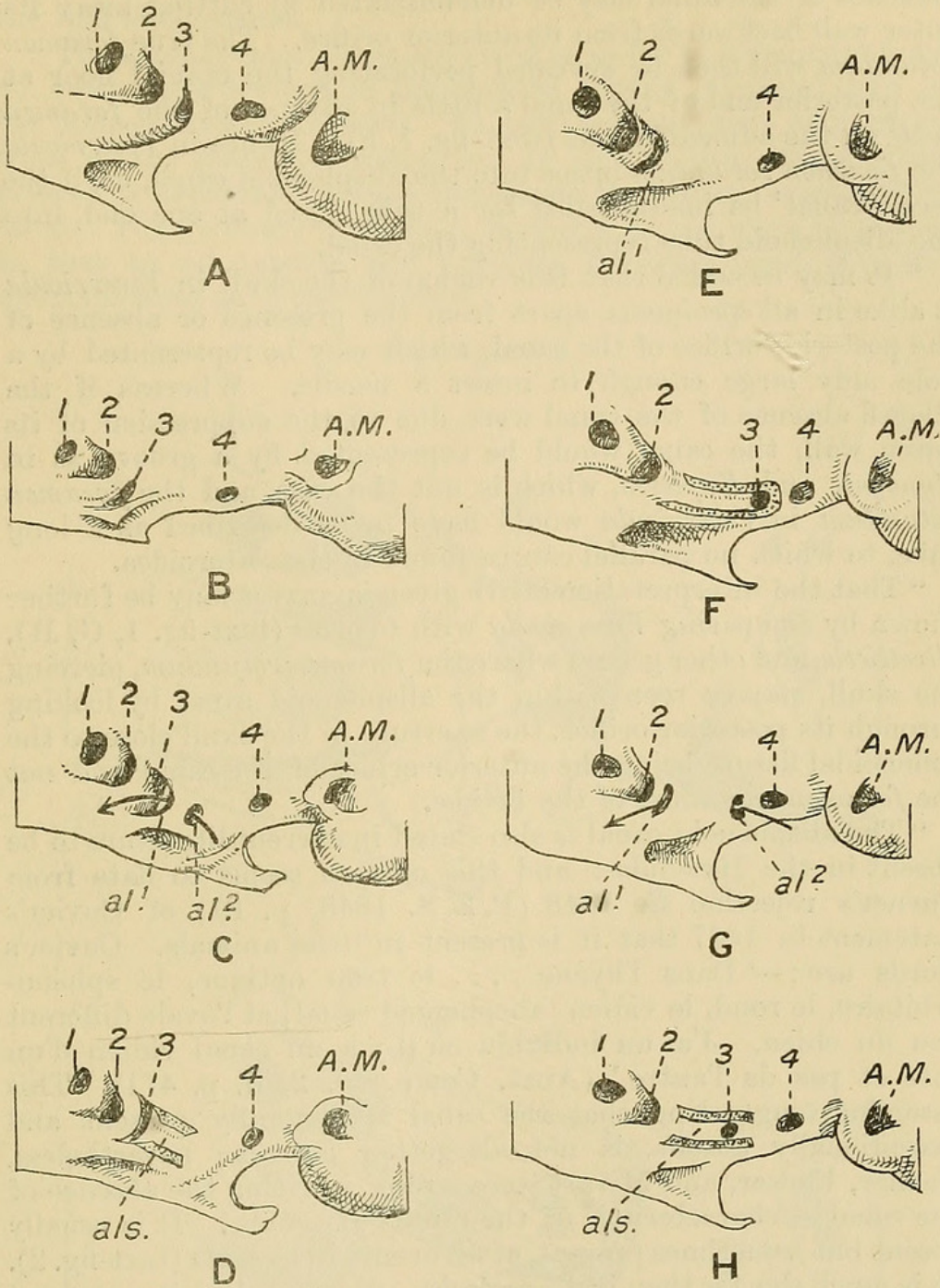
“This interpretation seems to be the one that is currently accepted; and since no alternative has, so far as I am aware, been suggested, it may be assumed that the same explanation has been tacitly extended to those specimens of *Viverricula* in which the canal has been described as absent (text-fig. 1, E). The statement, however, that the canal is absent in that genus is not true. It is in reality present, its apparent absence being due to the closure of its posterior orifice and not to the imperfection of its outer wall.

“Justification for this view rests upon the following facts:—

“The orifice, lying alongside the sphenoidal fissure in *Viverricula*, which Flower would doubtless have called the *foramen rotundum*, is in reality the anterior end of the alisphenoid canal, which, when complete, opens posteriorly by a small aperture just

* The term Viverridæ is here used, without prejudice, in the sense in which Flower and Mivart and their successors employed it.

Text-figure 1.



- A. Left cranial foramina of *Felis* with zygoma cut away. 1. optic foramen; 2. sphenoidal fissure (*foramen lacerum anticum*); 3. foramen rotundum; 4. foramen ovale; A.M. auditory meatus.
- B. The same of *Galidictis*.
- C. The same of *Crossarchus*. *al.¹* anterior, and *al.²* posterior orifice of alisphenoid canal with bristle passed through it.
- D. The same with outer wall of alisphenoid canal (*als.*) cut away.
- E. The same of *Viverricula* with posterior orifice of canal closed.
- F. The same with outer wall of canal cut away to show foramen rotundum (3) opening into posterior end of canal.
- G. The same of *Genetta*, showing the complete alisphenoid canal concealing the foramen rotundum.
- H. The same with the outer wall of the canal cut away, exposing the foramen rotundum opening into it.

in front of the *foramen ovale*. When this aperture is absent, the presence of the canal may be demonstrated by cutting away its outer wall backwards from its anterior orifice. The true *foramen rotundum* will then be revealed perforating the cranial floor at the posterior end of the canal a little in advance of the *foramen ovale* on the admedian side (text-fig. 1, F). Hence in *Viverricula* the *foramen rotundum* opens into the alisphenoid canal, or, if the term 'canal' be inadmissible for a tube closed at one end, into the alisphenoid tube representing the canal.

"It may be added that this region of the skull in *Viverricula* is alike in all specimens, apart from the presence or absence of the posterior orifice of the canal, which may be represented by a hole only large enough to insert a needle. Whereas if the alleged absence of the canal were due to the suppression of its outer wall, the canal would be represented by a groove, as in *Cynogale* and *Eupleres*, which is not the case, and the *foramen rotundum* in *Viverricula* would have to be described as a long tube, to which no parallel can be found in the *Æluroidæ*.

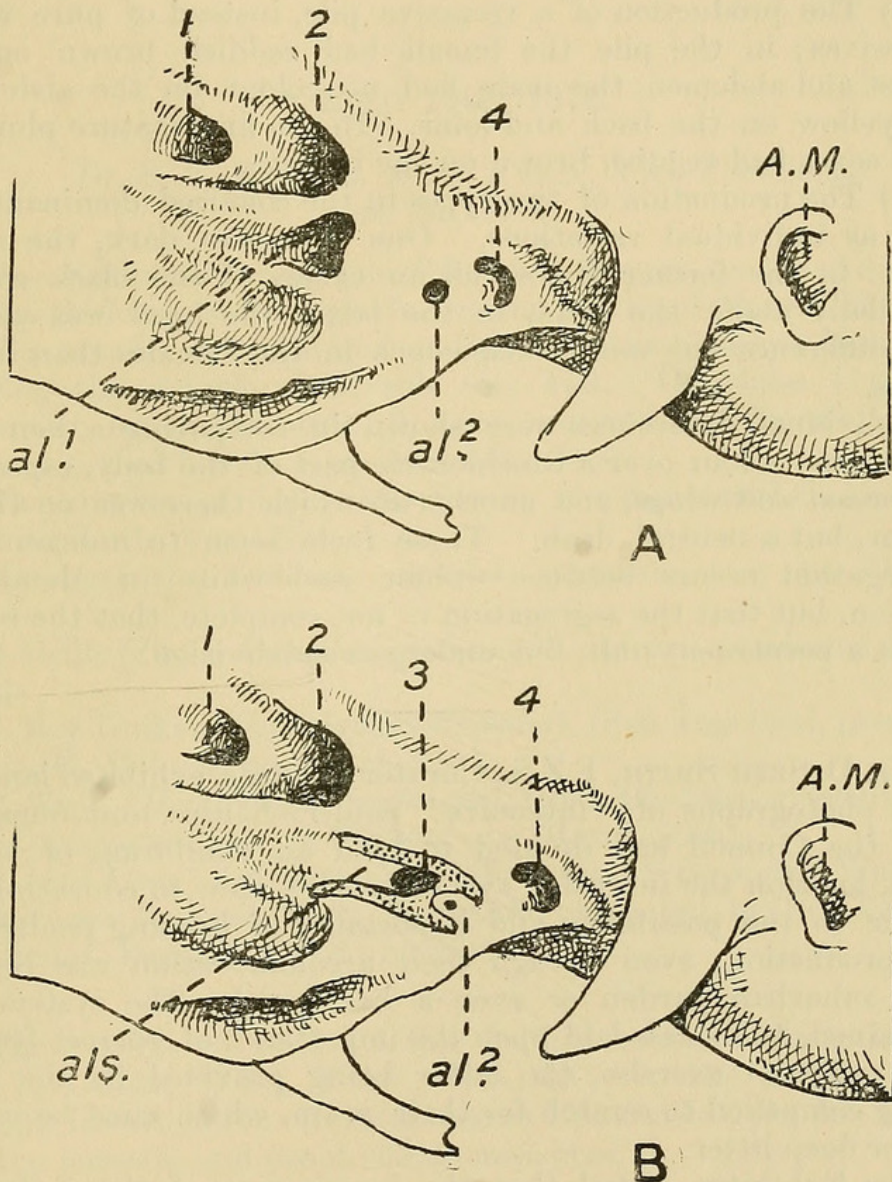
"That the interpretation above given is correct may be further shown by comparing *Viverricula* with *Genetta* (text-fig. 1, G, H), *Civettictis*, and other genera where the *foramen rotundum*, piercing the skull, may be seen within the alisphenoid canal by looking through its posterior orifice, the aperture in the skull close to the sphenoidal fissure being the anterior orifice of the canal and not the *foramen rotundum* of the *Felidæ*.

"The alisphenoid canal is also stated in current literature to be absent in the *Hyænidæ*; and this opinion seems to date from Turner's rejection in 1848 (P. Z. S. 1848, p. 81) of Cuvier's statement in 1837 that it is present in these animals. Cuvier's words are:—'*Dans l'hyène . . . le trou optique, le sphéno-orbitaire, le rond, le vidien [alisphenoid canal] et l'ovale diffèrent peu du chien. J'ai un individu où il y a un canal vidien d'un côté et pas de l'autre*' (Anat. Comp. ed. 2, ii. p. 471). This assertion, suggesting that the canal is generally present and exceptionally absent, is not altogether correct; nevertheless, Turner, Flower, and Mivart were wrong in citing the absence of the canal as characteristic of the family *Hyænidæ*. It is usually absent but sometimes present, at all events in *Crocota* (text-fig. 2). It is much shorter than in *Viverricula*. Nevertheless, its apparent absence is due to the same process as in that genus, namely the obliteration of its posterior orifice. There is sometimes no trace of this orifice; but quite commonly it is represented by a small aperture a little in front of the *foramen ovale*. This aperture may lead into a very short blindly ending tube, whence a small hole, also to be seen at the posterior end of the canal in *Canis*, penetrates the sphenoid bone (text-fig. 2, B). In other and rarer cases where this aperture is larger, a bristle passed into it emerges at a tolerably large foramen lying beneath the hinder end of the sphenoidal fissure in the temporal fossa. This foramen is the anterior end of the canal and not the *foramen rotundum* which perforates the base of the skull within the canal behind

that orifice as in *Viverricula*, as may be shown by cutting away the wall of the canal.

"The arrangement above described is, so far as my observations go, much more obvious in the Spotted Hyæna (*Crocota*) than in the Striped Hyæna (*Hycæna*). In both genera there may be no trace of the posterior orifice, but in *Hycæna* this orifice, when present, is apparently always quite small and never completes the canal. The *foramen rotundum*, moreover, is set more forwards, so that to all intents and purposes it opens direct into the temporal fossa as in the *Felidæ*."

Text-figure 2.



- A. Left cranial foramina of *Crocota* (Spotted Hyæna) with zygoma cut away. 1. optic foramen; 2. sphenoidal fissure (*foramen lacerum anticum*); 4. foramen ovale; A.M. auditory meatus; *al¹* anterior orifice of alisphenoid canal; *al²* partially obliterated posterior orifice of the canal.
- B. The same with the outer wall of the alisphenoid canal (*als.*) cut away, exposing the foramen rotundum (3) opening into it and showing the posterior orifice of the canal *al²* with its minute foramen, shut off by bone from the main portion of the canal. When this bone is absent, the canal is complete from end to end.

April 4th, 1916.

Dr. A. SMITH WOODWARD, F.R.S., Vice-President,
in the Chair.

Mr. J. T. CUNNINGHAM, M.A., F.Z.S., exhibited a number of skins of fowls produced in the course of six generations descended from a cross between a male *Gallus bankiva* and a female Silky fowl. The cross was made at the Society's Gardens in 1910, and Mr. Cunningham's specimens were bred from a pair of the F1's given to him in 1911.

The chief points illustrated were:—

(1) The production of a recessive pile, instead of pure white recessives; in the pile the female had reddish brown on the breast and abdomen, the male had no colour on the abdomen, but yellow on the back and loins. In the first mature plumage both sexes had reddish brown on the breast.

(2) The production of two types in the coloured dominants, as well as individual variations. One type was dark, the other light: in the former there was an excess of the black colour, especially about the head, in the latter the head was yellow. The difference was more conspicuous in the females than in the males.

Individual differences were shown in comparing a hen with vinous-red colour over a considerable part of the body, especially the breast and wings, and another in which there was no vinous colour, but a neutral drab. These facts seem to indicate that segregation occurs between colour and white in Mendelian fashion, but that the segregation is not complete, that the colour is not a permanent unit, but undergoes subdivision.

Mr. D. SETH-SMITH, F.Z.S., Curator of Birds, exhibited lantern-slide photographs of "intensive" poultry-houses, and remarked that the Council had decided to hold an exhibition of laying hens, kept on the intensive system, with a view to educating the public to the possibility and importance of keeping poultry for egg-production, even though their accommodation was limited to a suburban garden or even a back-yard. The system was explained, and stress laid upon the importance of correct feeding and sufficient exercise, the latter being provided by the birds being compelled to scratch for their grain, which must be buried under deep litter.

The Exhibitor stated that the houses were of three sizes, to accommodate from six to thirty birds, and had been lent to the Society by Mr. Randolph Meech, who was the pioneer of the system in this country. The exhibition would be open to the public on April 8th, and some two hundred birds would be on view.

Prof. J. P. HILL, D.Sc., F.R.S., F.Z.S., exhibited living specimens of the Cæcilian, *Siphonops annulatus*, collected by the Percy Sladen Expedition at Theresopolis, Serra dos Orgaos, Brazil, in October 1913. He also exhibited a series of photographs of embryos of the same, obtained from eggs laid at University College.

Mr. G. A. BOULENGER, F.R.S., F.Z.S., read a paper "On the Lizards allied to *Lacerta muralis*, with an Account of *Lacerta agilis* and *L. parva*."

This paper will be published in the 'Transactions.'

April 18th, 1916.

Dr. S. F. HARMER, M.A., F.R.S., Vice-President,
in the Chair.

The SECRETARY read the following Report on the Additions to the Society's Menagerie during the month of March, 1916.

The number of registered additions to the Society's Menagerie during the month of March was 176. Of these 116 were acquired by presentation, 5 were received on deposit, 50 by purchase, and 5 were born in the Gardens.

The number of departures during the same period, by death and removals, was 158.

Amongst the additions special attention may be directed to:—

2 Drills (*Papio leucophaeus*), from W. Africa, purchased March 16th.

1 Bay Duiker (*Cephalophus dorsalis*), from Togoland, presented by O. H. Bohner, on March 23rd.

2 Thar (*Hemitragus jemlaicus*), from Chamba, presented by the Government of the Punjab, on March 20th.

2 Axis Deer (*Axis axis*), from India, and 3 Bennett's Wallabies (*Macropus bennetti*), from Tasmania, presented by Sir Edmund G. Loder, Bart., V.P. Z.S., on March 21st.

The SECRETARY read a letter he had received from Lt.-Col. R. T. Leiper, D.Sc., F.Z.S., R.A.M.C., on the subject of his recent investigations in reference to Bilharziosis, the life-history of the parasite and prophylactic measures.

Mr. C. TATE REGAN, M.A., F.Z.S., gave an exhibition of lantern-slides illustrating how certain fishes protect their eggs by carrying them about, either in the mouth (*Arius*, some Cichlidæ), on the occiput (*Kurtus*), on the abdomen (*Aspredo*), or in a special brood-pouch (Syngnathidæ).

May 9th, 1916.

Dr. S. F. HARMER, M.A., F.R.S., Vice-President,
in the Chair.

The SECRETARY read the following report on the Additions to the Society's Menagerie during the month of April, 1916 :—

The number of registered additions to the Society's Menagerie during the month of April was 90. Of these 36 were acquired by presentation, 23 were received on deposit, 30 by purchase, and 1 was born in the Gardens.

The number of departures during the same period, by death and removals, was 117.

Amongst the additions special attention may be directed to :—

2 Capybaras (*Hydrochærus hydrochærus*), from South America, presented by Sir Edmund G. Loder, Bart., V.P.Z.S., on April 18th.

1 Long-haired Armadillo (*Euphractus vellerosus pannosus*), from Cordova, presented by Wilfred A. Smithers, C.M.Z.S., on April 10th.

2 Australian Barn-Owls (*Strix delicatula*), from Kalgoorlie, Western Australia, presented by Dr. J. Vere Arkle, on April 3rd.

3 South-American Cæcilians (*Siphonops annulatus*), from Brazil, presented by Prof. J. P. Hill, F.R.S., F.Z.S., on April 4th.

Mr. R. H. BURNE, M.A., F.Z.S., exhibited preparations from the Royal College of Surgeons Museum of various Teleostean Fishes*, showing connections of different kinds between the swim-bladder and the ear. The fishes belonged to several distinct families. In some (Berycidæ, Gadidæ, Hyodontidæ, Notopteridæ) the connection was shown to be by direct contact between a process of the swim-bladder and a fenestra in the periotic capsule, or even (Clupeidæ) between the swim-bladder and part of the internal ear; while in others (Ostariophysi) it is indirect and the swim-bladder is connected with the perilymph spaces that surround the ear by a chain of ossicles (Weberian ossicles).

It was suggested that the above connections are probably an aid in the perception of sound, and, in furtherance of this view, specimens were shown of the "elastic spring" mechanism in several Siluroids, by which the walls and contained gases of the swim-bladder can be made to give rise to sonorous vibrations.

* Presented to the College by Col. C. E. Shepherd.

CORRECTION.

On p. 109 of Prof. Poulton's paper on Moths from Somaliland "Genus *Pachycoa*" should read: "Genus *Pachycoa*, nov."



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