black colouring occupies but little space, but in each successive feather it increases in extent. The feathers of the tail are of a very dark green colour above, inclining to black; beneath they are black, but exhibit indistinct purple reflections. The rump, upper and under tail coverts, thighs, and vent are black, obscurely tinted with purple or green in parts. The tarsi are black. The eyes are hazel, and the naked, or almost naked, space around the eye, is of a crimson colour; not carunculated, as in *C. Buffonii* and *C. leucotis*.

A highly-interesting and valuable series of specimens of the Paper Nautilus (*Argonauta Argo*), consisting of the animals and their shells of various sizes, of ova in various stages of development, and of fractured shells in different stages of reparation, were exhibited and commented on by Professor Owen, to whom they had been transmitted for that purpose by Madame Jeanette Power. Mr. Owen stated that these specimens formed part of a large collection, illustrative of the natural history of the Argonaut, and bearing especially on the long-debated question of the right of the Cephalopod inhabiting the Argonaut shell to be considered as the true fabricator of that shell.

This collection was formed by Madame Power in Sicily in the year 1838, during which period she was engaged in repeating her experiments and observations on the Argonaut, having then full cognizance of the nature of the little parasite (*Hectocotylus*, Cuv.), which had misled her in regard to the development of the Argonaut in a previous suite of experiments described by her in the Transactions of the Giænian Academy for 1836.

As this mistake had been somewhat illogically dwelt on, to depreciate the value of other observations detailed in Madame Power's Memoir, Mr. Owen observed, that it was highly satisfactory to find that the most important of the statements in that memoir had been subsequently repeated and confirmed by an able French malacologist, M. Sander Rang.

The collection of Argonauts,—Cephalopods and shells,—preserved in spirits, included twenty specimens, at different periods of growth, the smallest having a shell weighing not more than one grain and a half, the remainder increasing, by small gradations, to the common-sized mature individual.

The inductions, which the present collection of Argonauts of different ages and sizes legitimately sustained, were in exact accordance with Madame Power's belief that the Cephalopod was the true constructor of the shell, while no contradictory inference had been, or could be, deduced from an examination of the specimens themselves.

With reference to the second suite of specimens, viz. the ova of the Argonaut in different stages of development, Mr. Owen entered into a detailed account of the new and interesting facts which they revealed. In the ova most advanced, the distinction of head and body was established; the pigment of the eyes, the ink in the ink-bladder, the pigmental spots on the skin, were distinctly developed; the siphon, the beak,—which was colourless and almost transparent,—and the arms were also discernible by a low microscopic power; the arms were short and simple; the secreting membranes of the shell were not developed, and of the shell itself there was no trace.

Mr. Owen then recapitulated as follows, the evidence, which, independently of any preconceived theory or statement, could be deduced from the admirable collection of *Argonauta Argo* due to the labours of the accomplished lady who had contributed so materially to the elucidation of a problem which had divided the zoological world from the time of Aristotle.

1st. The Cephalopod of the Argonaut constantly maintains the same relative position in its shell.

2nd. The young Cephalopod manifests the same concordance between the form of its body and that of the shell, and the same perfect adaptation of the one to the other, as do the young of other testaceous Mollusks.

3rd. The young Cephalopod entirely fills the cavity of its shell: the fundus of the sac begins to be withdrawn from the apex of the shell only when the ovarium begins to enlarge under the sexual stimulus.

4th. The shell of the Argonaut corresponds in size with that of its inhabitant, whatever be the differences in the latter in that respect. ("The observations of Poli, of Prevost, and myself, on a series of *Argonauta rufa*, before cited, are to the same effect.")

5th. The shell of the Argonaut possesses all the requisite flexibility and elasticity which the mechanism of respiration and locomotion in the inhabitant requires: it is also permeable to light.

6th. The Cephalopod inhabiting the Argonaut repairs the fractures of its shell with a material having the same chemical composition as the original shell, and differing in mechanical properties only in being a little more opake.

7th. The repairing material is laid on from without the shell, as it should be according to the theory of the function of the membranous arms as calcifying organs.

8th. When the embryo of the Argonaut has reached an advanced stage of development *in ovo*, neither the membranous arms nor shell are developed.

9th. The shell of the Argonaut does not present any distinctly defined nucleus.

Mr. Owen finally proceeded to consider the validity of the best and latest arguments advanced in favour of the parasitism of the Cephalopod of the Argonaut.

Finally, Mr. Owen proceeded to state in detail the points which still remained to be elucidated in the natural history of this most interesting Mollusk. Among other experiments he suggested that the young Argonaut should be deprived of one of the velated arms, and preserved in a marine vivarium, with the view to determine the influence which such mutilation might have on the future growth of the shell: but in proposing further experiments, and while admitting that the period of the first formation of the shell yet remained to be determined, Mr. Owen stated that he regarded the facts already ascertained to be decisive in proof that the Cephalopod of the Argonaut was the true fabricator of its shell.

March 12. The notice of M. Temminck's letter, and the second part of Dr. Cantor's paper, read this day, have been inserted above, pp. 273. 341.

April 9, 1839.—The Rev. F. W. Hope, in the Chair.

A collection of beautifully finished drawings of Tasmanian Fishes was exhibited to the Members present, these drawings having been sent to the Society by Dr. Lhotsky for that purpose. In a letter accompanying these drawings, Dr. Lhotsky stated that they had all been executed, under his own superintendence, from fresh specimens.

A new species of Hamster was exhibited by Mr. Waterhouse, and characterized as follows:

Cricetus auratus. *Cri. aureo-fuscescens, subtùs albidus: pilis mollissimis, suprà ad basin plumbeis, subtùs ad basin cinereis: auribus mediocribus, rotundis: caudâ brevissimâ pilis albis obsitâ.*

	unc.	lin.
Longitudo ab apice rostri ad caudæ basin ..	7	6
——— *caudæ*	0	5
——— ab apice rostri ad basin auris	1	6
——— *tarsi digitorumque*.....	0	10
——— *auris*.....	0	7

Hab. Aleppo.

"This species is less than the common Hamster (*Cricetus vulgaris*), and is remarkable for its deep golden yellow colouring. The fur is moderately long and very soft, and has a silk-like gloss: the deep golden yellow colouring extends over the upper parts and sides of the head and body, and also over the outer side of the limbs: on the back, the hairs are brownish at the tip, hence in this part the fur assumes a deeper hue than on the sides of the body: the sides

of the muzzle, throat, and under parts of the body are white, but faintly tinted with yellow: on the back, and sides of the body, all the hairs are of a deep gray or lead colour at the base; and on the under parts of the body, the hairs are indistinctly tinted with gray at the base. The feet and tail are white. The ears are of moderate size, furnished externally with deep golden-coloured hairs, and internally with whitish hairs. The moustaches consist of black and white hairs intermixed.

"The skull, when compared with that of *Cricetus vulgaris*, differs in not having the anterior root of the zygomatic arch produced anteriorly in the form of a thin plate, which in that animal, as in the Rats, serves to protect an opening which is connected with the nasal cavity: the facial portion of the skull is proportionately longer and narrower: in size there is much difference, the skull of *Cricetus auratus* being one inch and six lines in length, and ten lines in breadth, measuring from the outer side of the zygomatic arches."

April 23, 1839.—William H. Lloyd, Esq., in the Chair.

A letter was read from Dr. Weissenborn, dated Weimar, February 19, 1839. It accompanied a female specimen of the Hamster (*Cricetus vulgaris*), which he begged to present to the Society, and related to some longitudinal, naked (or nearly naked) marks which are observable on the hips of that animal.

These marks, Dr. Weissenborn states, are found in every Hamster, though usually hidden by the long fur which surrounds them, and the common opinion of the furriers (who have to cut them out and to repiece the skin) is, that they arise from friction. Being situated over the hip-bones, and therefore more exposed than other parts, the hair is worn whilst the animal is moving in its burrow. This is the opinion also of the earlier authors, but "is, however, erroneous, as remarked already by Dr. Sulzer, in his valuable monograph on this species, published at Gotha in 1774. These spots are visible the very moment the hair begins to grow, in the naked young, and they are the very places where the growth of the hair becomes first apparent. At this early stage of the animal's life, they appear on the inner side of the skin, when viewed by transmitted or reflected light, as two dark spots. When all the hair is developed the case is reversed, and these spots appear paler than the rest of the skin. Dr. Sulzer confesses himself to be quite ignorant of the part which these peculiar spots act in the œconomy of the animal, and no subsequent author has explained the subject. I imagine no person, after Sulzer, has turned his attention seriously to it, but it is to be wondered that he was not more successful, being

an accurate and clever observer. The reason why the Hamster is furnished with these spots appears to me very far from being mysterious, and had the cause not been mistaken for the effect, I think anybody might have hit upon the idea, that nature had made the short, stiff, and closely adpressed hairs, to grow upon these spots of the Hamster's body, *which are most exposed to friction*, and at the same time contiguous to bone, that the hair and the skin might be competent to stand the wear and tear to which they necessarily are subjected in the narrow burrow of an animal, which is very brisk in its movements; and no doubt the skin, which gives rise to a different kind of hair, is of a different structure from the rest; and as this hair is more stiff, the skin which it covers is probably more callous.

"In the present state of the science of physiology, it may be impossible to state with sufficient precision the conditions on which the peculiar structure of the skin and hair, in these particular spots, depends. The relation in which the latter stand to the hip-bones by peculiar tissues may perhaps help to explain the circumstance, as the neighbourhood of, and connexion with, bony structures, have an evident influence on the nature of the skin and its productions."

Mr. Waterhouse remarked, that the description which Dr. Weissenborn had given of the peculiar spots on the hips of the Hamster, caused him to suspect that they were glands, analogous to those observable in the Shrews, and might help the animals to distinguish each other in their dark burrows.

Mr. Waterhouse exhibited two specimens of a species of Lark from China, which had recently died in the Society's Menagerie, having been presented to the Society by J. R. Reeves, Esq. It was characterized as follows:

ALAUDA SINENSIS. *Al. suprà rufo-fusca, subtùs alba, fasciâ latâ pectorali nigrâ; linea sordidè albâ ab oculis, ad occiput extensâ; fronte, nuchâ, et humeris castaneis; remigibus primariis nigris, marginibus externis angustè fuscescenti-albis, remige primo illo externè marginato; caudâ nigrâ, rectrice utrinque externâ albâ, ad basin nigro lavatâ, proximâ utrinque albo-marginatâ; rectricibus intermediis duabus fuscescentibus.*

Long. tot. 8 *unc.*; *rostri*, $\frac{3}{4}$; *alæ*, 5; *caudæ*, $3\frac{1}{4}$; *tarsi*, 10 lin.
Hab. apud Sinam.

The Chinese Lark very much resembles, and is nearly allied to, the *Alanda Calandra* of authors, but differs in the following particulars. The beak is more compressed, and the upper mandible has two longitudinal grooves on each side, the upper one of which gives a keel-like edge to the culmen; the tail is proportionately longer, the tarsi are shorter; the feet are smaller, and the hinder claws, in-

stead of being bent downwards, are slightly recurved*. In the colouring there are also points of distinction: in lieu of the dull brown tint on the top of the head and back, the present species possesses rich rufous brown feathers. In one specimen the body is yellowish white beneath, but in the other it is pure white.

Mr. Waterhouse then proceeded to make some observations upon a series of skulls of Rodents which were upon the table. These skulls belonged chiefly to species of the various genera contained in the families *Chinchillidæ* (consisting of the genera *Chinchilla*, *Lagotis*, and *Lagostomus*), and *Caviidæ*—composed of the genera *Cavia*, *Kerodon*, *Dolichotis*, and *Hydrochœrus*. Numerous points of resemblance between these two families were dwelt upon, more particularly in the structure of the teeth, the form of the palate, the contracted glenoid cavity, the form of the lower jaw, and direction of the lower pair of incisors. The *Caviidæ*, however, possess certain characters, independent of those observable in the form of the teeth, which renders it easy to distinguish them from the *Chinchillidæ*. He alluded especially to the shortness of the condyloid process of the lower jaw, the forward position of the coronoid process, the peculiar projecting ridge on the outer side of the horizontal ramus, and the form of the descending ramus or angle of the jaw; this projects considerably beyond the line of the coronoid process, whereas in the *Chinchillidæ* it terminates in a line with the posterior portion of the coronoid process, or projects but slightly beyond that line.

Among the *Chinchillidæ*, the *Lagostomus trichodactylus*, observes Mr. Waterhouse, approaches most nearly to the Cavies, the angle of the lower jaw being less acute and the coronoid process more forward than in the other species.

In the imperfect state of the palate, the narrowness of the anterior and posterior sphenoids, the form of the occipital condyles, the form of the articular portion of the lower jaw, and the almost horizontal direction of the incisors of the lower jaw of the Chinchillas and Cavies, Mr. Waterhouse stated he had found characters which induced him to place those animals next before the *Leporidæ*.

May 14. Mr. Cunningham's account of the Apteryx, and Mr. Hope's Monograph of Euchlora, have been inserted above, pp. 312. 342.

May 28.—William Ogilby, Esq. in the Chair.

A paper from the Rev. R. T. Lowe was read, entitled "A Supplement to the Synopsis of the Fishes of Madeira," inserted above, p. 405.

* "This difference in the form of the claw cannot be depended on, as the birds have been for some time in confinement; they *may* originally have been straight, but I think they never could have been curved downwards."

June 11.—William Yarrell, Esq., Vice-President, in the Chair.

Mr. Bucknell exhibited his *Eccaleobion*, or machine for hatching eggs; and having broken eggs in every stage of incubation, explained the nature and incidents of the process. Mr. Bucknell stated that the period of incubation in the common fowl, which was, on an average, 21 days, sometimes varied from 18 to 24 days, and that he attributed this variation to the mode of keeping, and previous treatment, by which the embryo was injured, either from the heat of the weather, exposure to variety of temperature, jolting in carriage, &c. The young bird was occasionally known to emit a faint chirp even so long as 24 hours before being excluded; and he believed that if this noise was heard on the 18th day the chickens would probably appear on the 19th. From this and other circumstances, such as the common mode of preparing eggs by varnishing, &c., the porosity of the shell, and other similar causes, he concluded that the small globule of air constantly found in eggs, and which he had observed to increase according to the age of the egg, was produced by the air penetrating the substance of the shell and its lining membrane.

The average number of malformations, according to Mr. Bucknell's experience, was not more than five in a thousand; though in Egypt, it was stated, that malformations were extremely common in the artificial process of incubation. He attributed this circumstance to an excess of heat, and generally found it to affect the toes and extremities; sometimes also the muscles of the neck.

A general conversation afterwards took place on this subject, during which much interesting and valuable information was extracted, with regard to the period and circumstances of the incubation.

A letter from H. Cuming, Esq., Corr. Memb., dated Manilla, November 18, 1837, was read. This letter stated that Mr. Cuming had forwarded a collection containing 395 birds and 12 quadrupeds, from the southern part of the Island of Luzon.

Mr. Cuming states that quadrupeds are scarce in the Philippine Islands, and that he has been able to procure all the species known excepting three, two of which are Deer, and the third is a species of Buffalo, of small size, with straight and sharply-pointed horns. This last animal Mr. Ogilby stated was most probably the *Anoa depressicornis*.

Mr. Ogilby exhibited the skull of an Elk from Nova Scotia, brought over by Dr. Cox, and remarkable for its great size as compared with the dimensions of the horns.