as far as the apex, the apex of the posterior tibiæ bordered with partly feather-like hairs.*

The nests of *T. cagafogo*, like those of many other species, are built in hollow trees. One of two nests which my brother had the opportunity of observing was found in a tree cut down a long time before; but its combs, lying in confusion, probably in consequence of the direction of the trunk having been altered by felling the tree, showed that the nest had probably been built before the tree was felled. In this nest, the inhabitants of which partly perished by having been plastered over with the honey which flowed from the damaged honey-pots during the transport, partly, as is to be supposed, flew away afterwards; besides a great number of workers and a small number of males, only a single queen was found, viz. that illustrated in Figs. 3 and 4. The honey-pots, of the size of large hazel-nuts, were closely aggregated together. The honey was of a very viscous consistence, partly as clear as water, partly lighter or darker yellow; its flavour appeared to my brother insipid, pituitous, and somewhat disagreeable (the latter perhaps, as he supposes himself, because he was conscious of the cagafogos feeding upon carrion). The brood-combs, as with other Trigonas, were simple layers of hexagonal upright cells. The wax, of which both the honey-pots and the brood-combs were built, was nearly of a pure white colour, but it was mixed with such an enormous quantity of heterogeneous ingredients (perhaps 90 per cent.) that the building appeared of a dirty brown or blackish colour.

Another nest, found by my brother in a trunk of *Canella pimenta*, about five meters above the ground, was brought safety home after cutting down the tree; but a week afterwards all the inhabitants had flown away.

The most striking feature in the natural history of this stingless bee is its fondness for oily matters, and its singular means of defence, connected with a great irritability. As I have already stated (vol. viii. p. 201) it feeds upon carrion; and is also fond of old stinking cheese. When visiting flowers, it seems to be also guided by its particular taste; it visits in swarms the flowers of a bean with glandular calyx; also a white-flowered Abutilon and *Sicyos angulata*, the flowers of which are glandular and secrete an oil. It was also observed fertilising the flowers of *Asclepias curassavica*, milking the larvæ of Membracis, repeatedly sucking the juice flowing out of trees, and devouring the sugar spread to be dried. Its singular means of defence are indicated by the vernacular name Cagafogo (spit-fire), for although stingless, like all other Trigonas and Meliponas, it possesses a very intense venom, which causes a most lively irritation in the skin. Whilst the defenceless species are for the most part very peaceable, the Cagafogos, on the contrary, are so irritable that the observation of their nests proves impossible, unless cold weather or strong breezes from the land keep them quiet.

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THE MAMMALS OF MOUPIN

"WHERE is Moupin?" our readers will say, when they see the heading of this article. To this it may be replied that, if not already well known to zoologists, Moupin bids fair to become so very quickly, as it possesses one of the most strange and interesting faunas which have become known to us of late years. Moupin is the name of one of the small independent principalities lying on the extreme west of the great Chinese province of Setchuan. It does not appear to be marked on any of our charts, but if our readers will turn to the map of China and find Ching-tou, the capital of Setchuan, they will see still farther to the west a range of mountains designated the "Yungling Mountains," which separate China proper from Thibet. Amongst these the district called Moupin is situated.

The first and only European who has penetrated to this remote corner of the earth is the celebrated French traveller, Armand David, a missionary priest of the congregation of Lazarists, who has for many years, by permission of his superiors, devoted himself to the exploration of the Chinese flora and fauna. Père David left his mission in Pekin in May 1868, and travelled by the Yangze-kiang—the great high road into the interior of China—to Chongkin. Hence he proceeded by land, leaving his baggage to follow by water, and after twelve days' journey reached Chong-tong, the capital of the great province of Setchuan, where there is a large Catholic mission, presided over by an Apostolic vicar. Hence to Moupin was eight days' journey farther westward, during the latter portion of which a mountain range nearly 10,000 ft. high was traversed. Père David's ordinary residence in Moupin was in one of the high valleys at an elevation of about 7,000 ft. above the sea-level, above which rose one of the principal mountains of the district to the height of 15,000 ft. Up to about 10,000 ft. dense woods of pines and cedars varied with rhododendrons, laurels, and magnolias prevail. During a ten months' residence in this locality, Père David formed extensive collections in every branch of Natural History, which were transmitted to the museum of the Jardin des Plantes at Paris. In a report* addressed to the professors of that establishment, which has been lately published in the 7th volume of the "Nouvelles Archives," Père David has given a complete list of the mammals of his collection, which embraces no less than 110 species. The novelties are shortly described by M. Alphonse Milne-Edwards, one of the naturalists of the Jardin des Plantes, who, however, is now giving a much more complete account of them in a large work on which he is engaged, entitled "Récherches sur l'histoire naturelle des mammifères." The following are some of Père David's most remarkable discoveries in Moupin in the class of Mammals.

Under the name *Rhinopithecus roxellanæ* is described a very singular new form of monkey, clothed with dense hair, and with a turned-up nose, which inhabits the highest forests adjoining the snow. A second monkey from the same mountains is described as *Macacus thibetanus*; and a third was ascertained to exist in the rocks of the more eastern part of the district, but was, unfortunately, not obtained.

Amongst the Insectivora, Père David's discoveries are also remarkable. Besides several species of shrew, of the known genera *Sorex* and *Crocidura*, a new form, allied to *Diplomesodon*, was discovered, which M. Milne-Edwards names *Anourosorex squamipes*. Still more curious is an entirely new aquatic form, allied to *Mygale*, which M. Milne-Edwards names *Nectogale elegans*. The moles are also represented in Moupin by two entirely new genera, *Uropsilus* and *Scaptonyx*, besides a new species of true *Talpa*.

The rodents of Moupin embrace several new species of *Mus*, *Rhizomys*, *Siphneus*, and *Lagomys*, besides squirrels of different genera: examples of thirty-six species in all were obtained. The carnivores also furnished some important novelties, three new polecats (*Putorius*), two new species of the badger-like form *Arctonyx*, and a new cat (*Felis*). But in this group the most industrious discovery was that of the *Ælurus fulgens*—hitherto regarded as a type peculiar for the higher Himalayas, and of its allied but larger brother *Æluropus melanolencus*—one of the most wonderful of recent additions to the class of mammals. These two genera constitute a special family of carnivores, representing, in the Palæarctic region, the

* A more full and detailed description of this and some other new species will be given in a separate treatise on Trigona and Melipona, to be published by my brother and myself.

* Rapport addressé a MM. les Professeurs-Administrateurs du Muséum d'Histoire naturelle par M. l'Abbé Armand David. Nouv. Arch. d. Mus. vii. Bull. p. 75.

Procyonidæ of the New World. The *Æluropus* is a large bear-like animal clad in snow-white fur. It inhabits the highest forests, and is called by the Chinese hunters "*Pae-shioung*" or "white bear." Its food is said to be of a vegetable character.

Proceeding to the Ungulates, we find other very remarkable discoveries recorded. The singular form *Budorcas*, hitherto only known from the Mishmee Hills of Assam, a large antilopine-looking creature with a pair of in-curved horns, is also met with in Moupin. Three new *Nemorhedi*, or goat-like antelopes, are also in the list. But perhaps the most interesting of all Père David's discoveries in this order of mammals is a new form belonging to the family *Cervidæ*, which M. Milne-Edwards has termed *Elaphodus cephalophus*. It is intermediate between the muntjacks and the true deer, having the highly developed upper canines of the former, but possessing a minute pair of horns about an inch in length, covered by a long tuft of frontal hairs as in the antelopes of the genus *Cephalophus*.

Altogether, out of the 110 species of mammals obtained by Père David in Moupin, no less than forty turned out to be new to Science, amongst which, as will be seen from what we have said above, were many of the most remarkable characters. There can be little question therefore, we think, that Moupin presents one of the most extraordinary faunas as regards its mammals that has become known to us for many years. It must be conceded that the land is difficult of access, and that perhaps no living European, except Père David, clad in Chinese garments, and speaking the ordinary vernacular of the country, could have found his way there. It has been lately stated in a scientific periodical that zoology is at a discount in France, and that their recent contributions to this science have been of the most meagre description. The splendid discoveries of Père David, and the works of Alphonse Milne-Edwards in which they are described, are of themselves sufficient to refute such a baseless charge.

THE TRANSIT EXPEDITIONS TO RODRIGUEZ AND KERGUELEN'S LAND

SOME four years ago (NATURE, vol. i. p. 527), we directed attention to the desirable opportunity, presented by the Transit expeditions to several little-known spots in the Pacific, of sending out qualified Natural-History observers to the same islands, in order to obtain a knowledge of their flora and fauna. The astronomical stations selected as being especially worthy of this kind of research were the Sandwich Islands, Kerguelen's Land, and the Island of Rodriguez. This subject having been brought before the Council of the Royal Society last year, and thus to the notice of the Treasury, we are glad to be able to announce that, after certain little difficulties on account of the change of Government, the present ministry were induced to grant a sum of money sufficient to send out naturalists to two of these stations, and that arrangements are now being made for their speedy departure along with their astronomical brethren.

Three naturalists will proceed to Rodriguez, the most remote and least known of the Mascarene group of islands. Dr. T. B. Balfour, son of the well-known Professor of Botany of the University of Edinburgh, will devote himself to an examination of the general geological structure of this island, which presents features of the greatest interest, inasmuch as it forms one of the few exceptions to the general rule that all oceanic islands of the deep sea are of volcanic origin. Dr. Balfour will also collect the plants of Rodriguez so as to increase our acquaintance with the flora of the island, which has hitherto, we believe, been scarcely touched.

Mr. George Gulliver, of the University of Oxford, has undertaken the zoological department, and will form as complete a series as possible of the recent animals of the island of every kind. The fauna of Rodriguez, as is well known, is excessively meagre, but it is very desirable that what little endemic life there is left on it should be investigated and collected at once, as being the relics of a very peculiar phase of life which is now passing away very rapidly.

To Mr. Henry H. Slater, of the University of Cambridge, who has had good experience of cave-digging in the north of England, has been entrusted the task of the complete exploration of the limestone caverns of Rodriguez, which has been so ably commenced by Mr. Edward Newton, the Colonial Secretary of Mauritius, with successful results well known to the majority of our readers. We trust also that Mr. Edward Newton may himself be able to accompany the party to Rodriguez, in order to give them the benefit of his advice and assistance. If this can be arranged, there remains no doubt that the Rodriguez expedition will attain most successful results.

For the expedition to Kerguelen's Land, the second point to which it has been agreed that natural history investigaton shall be directed, one naturalist has been considered to be sufficient, regard being had to the well-known poverty of its flora and fauna, and to the fact that the *Challenger* expedition has paid, or will shortly pay, a visit to the island. For this post the Committee of the Royal Society has selected the Rev. A. E. Eaton, who has already distinguished himself by making excellent collections, both zoological and botanical, in Spitzbergen. Spitzbergen, as observed by Dr. Hooker, lies under somewhat similar conditions as regards climate in the northern hemisphere, to Kerguelen's Land in the southern, and there can be no doubt that a naturalist who has worked well in the former will have gained experience likely to assist him in the latter locality.

As regards the exact time of the departure of these two expeditions, we believe that nothing is yet finally settled; but it is probable that the naturalists will in each case depart in company with the astronomers, who are under orders to leave England in the course of the ensuing month.

NOTES

AT a meeting of Convocation of the University of London held on Tuesday evening last, a motion "That in the opinion of Convocation it is desirable that women should be permitted to take degrees in the University of London," was carried by a majority of 83 against 65. The subject will, it is said, shortly be brought before the Senate, with whom originates all fresh legislation, Convocation having only a power of veto.

AT the same meeting a motion urging the Senate not to permit the practice of vivisection to be carried on in the physiological laboratory of the Brown Institution under any circumstances except for medical or curative purposes, was lost by a majority of 59 against 16.

WE have, on more than one occasion, spoken of the disgraceful way in which the Natural History Collections belonging to the defunct East India Company have been treated. They have been "boxed up" several years and deposited in the cellars of the India Office, so that they cannot be got at even when access to a particular type-specimen is requisite to enable a naturalist to determine a *vexata quæstio*. On the 5th inst. Sir John Lubbock endeavoured to ascertain from the Under-Secretary for India whether there is any prospect of the grievance being remedied, but did not succeed in getting much more than the cautious reply that the subject was "under consideration." We believe, however, that there is really a negociation for the transfer of the whole of the collection to South Kensington, in accordance with the suggestion put forward in our article on this