

M. A. Lupin's L'Érèbe, 8st 11lb Hudson 0
 Baron A. de Schickler's Fra Angelico, 8st 11lb..... Madge 0
 Betting: 7 to 4 on Fra Angelico, 10 to 1 each agst Courlis and Rueil,
 12 to 1 agst Chêne Royal, 25 to 1 each agst Bucentaure and Amadis II.,
 30 to 1 each agst Rânes and Diarbek, 100 to 1 each agst St Michel or
 L'Érèbe.

The running was made for some distance by Baron de Schickler's two colts and Diarbek, with Courlis and Rueil bringing up the rear. Diarbek, whose jockey could not hold him, went on in advance of the field for some little distance, but Chêne Royal and Fra Angelico soon passed him again, and Amadis II. and Bucentaure both held good places, while, rising the hill, L'Érèbe and St. Michel were already in difficulties. Increasing their lead as they breasted the hill and came down the incline at Boulogne, Baron de Schickler's pair were going so well that their names were already shouted as the winners, especially as Bucentaure lost ground coming down the hill, while Rueil appeared to be ridden by Tom Lane and not to get any nearer. But the cut-throat tactics which Baron de Schickler's two jockeys had adopted were telling their tale, and, as the straight was reached, Fra Angelico collapsed, his stable companion then having the lead, with Courlis drawing up to him. The latter, going very strong, was not long in disposing of Chêne Royal, and, with a good lead, seemed to have the race at his mercy. But Rueil, who had made up a lot of ground in most extraordinary style, gradually gained upon him, and, catching him in the last few strides, won a splendid race by a neck. Rolfe, the rider of Courlis, was at once taken to task for not having made more use of him at last; but it turned out that the tendon had given way in the last few strides, and Rolfe, feeling his horse falter, was obliged to be easy with him. But for this mishap, the neck would have been the other way; and it was a hard bit of luck for Mr Ridgway to see victory, as it were, snatched from his grasp. Chêne Royal was a bad third, beaten three lengths, with Bucentaure fourth, and Fra Angelico fifth; but I do not think the slightest importance is to be attached to the position of Baron de Schickler's two colts, as his two jockeys rode their heads off. But there is no reason for doubting that the result is pretty accurate so far as Rueil is concerned, for he was a better animal last year than any of the others, while his failure in the Derby the other day, when heavily backed by M. Blanc, was due to his getting a bad start, and then being nearly knocked down coming round Tattenham Corner. M. Blanc made no secret of this, and told everybody that he expected his horse would make a great fight of it on Sunday, the result being that the general public backed him, and at the *pari-mutuel* he gave only 6½ to 1 to win and 6 to 4 for a place. The victory of Rueil was therefore distinctly popular, and Lane, his jockey, came in for great congratulations, as he has now ridden the winner of the Grand Prix every year since 1888, except in 1889, when he was second on Pourtant. It is a pity, with the three-year-old form so mixed as it is, that Rueil is not in the St. Leger. Courlis was not the only runner who came to grief, for M. Delamarre's Diarbek had one of his tendons cut, and Amadis II. was so exhausted that he could hardly be got to his box.

The Friday of the Grand Prix week has for many years past been selected for the final meet of the Paris Four-in-hand Club, and the Société des Guides to give it its official title, turned out in great force this time, no fewer than twenty-seven coaches mustering upon the Place de la Concorde, and driving up the Champs Élysées and through the avenues of the Bois de Boulogne to the well kept park, within which the Société des Steeplechases provides such excellent sport. There has not been a better meet in Paris for years, and if some of the teams were very indifferent, and if a few of the drivers were very far from being up to their business, the majority were worthy of all praise. What, for instance, could be better than the three first teams, M. de la Haye Jouselin driving three browns and a grey, General the Comte de Friant three browns and a bay, and Mr Henry Ridgway three bays and a grey? These were not only good teams, but their drivers did not require any teaching as to how to hold them together, and Mr Ridgway's proficiency as a whip is much appreciated by those who patronise the road coach to Cernay-la-Ville, which leaves the office of the *New York Herald* every morning. A very nice team was that which followed Mr Ridgway's on Friday, viz., M. Ferdinand Bieschhoffshelm's bays, among the other teams of that colour being the Earl of Shrewsbury's, while the chestnuts of M. Martell, the bays and browns crossed of Count Costa de Beauregard, the bays and greys of M. Edouard Kann, and the browns and chestnuts of M. de Guilhemanson, who will persist in coming out with his lamps, were the best of the remainder. The reception of the coaches at the gates of Auteuil, and the procession up the course, with the outriders in scarlet leading the way, savours a little of Ascot on the Cup day.

THE NATURALIST.

NOTES ON RHINOCEROSSES, ANCIENT AND MODERN.

IT IS NOT UNCOMMON, in works devoted to the sporting rather than to the strictly scientific aspects of natural history, still to find rhinoceroses alluded to as pachyderms, or members of the Pachydermata. Now, although, as being, in every sense of the word, thick-skinned, these animals are undoubtedly entitled to the appellation Pachydermatous, yet the use of this term implies zoological relationships which do not exist. The pachyderms of Cuvier included elephants, hippopotami, swine, rhinoceroses, and tapirs; and, although all these animals belong to the great order of Ungulata, or hoofed mammals, a more miscellaneous assemblage could not well have been got together. As a matter of fact, while elephants represent a distinct group by themselves, the hippopotami and swine are now affiliated with the deer, antelopes, camels, &c., to constitute a second primary group, a third group being formed by rhinoceroses, tapirs, and horses, all of which agree in having the toe corresponding to our middle finger, symmetrical in itself. For these reasons we hope—although we scarcely venture to expect—that the term pachyderm may, for the future, be allowed to drop into the oblivion it merits.

To those who have not made an especial study of natural history and comparative anatomy, it may seem that there is little in common between such clumsy ill-shapen brutes as the rhinoceroses and neat smart-looking animals like horses and zebras. Palæontology teaches us, however, that the single toe of the horse and its modern allies is but a comparatively recently acquired character; and that, as we go backwards in time there were numerous three- or four-toed horse-like animals, with feet so like those of tapirs and rhinoceroses, that there can be no sort of question as to the near relationship of all these three families of animals. Moreover, the whole of them agree in having molar teeth constructed on the same peculiar general plan; this type of tooth (Fig. 1) consisting of an outer wall (which may, as in

mainly a grinding motion, from back to front and from side to side, after the manner of a horse; whereas, in the other species, the motion is more of a "champing" kind, like that we may observe in a pig. These features indicate that the Indian rhinoceros is what naturalists call a more specialised animal than its Javan cousin.

Then, again, whereas the females of the Indian rhinoceros have horns nearly or quite as large as the males, the females of the Javan species are frequently or invariably hornless. A large male Indian rhinoceros, measured by Col. Kinloch, stood 5ft. 9in. at the withers, and measured in girth one inch less; while its total length, exclusive of the tail, was 10½ft. As a rule, the horn is not more than 8in. in length, although specimens have been recorded slightly exceeding a foot. This species is a grass-eating animal, now confined to the grass-jungles of the plains of Northern India. Within historic times its range extended, however, into the Punjab; and fossilized teeth found in various parts of India prove that in earlier epochs it ranged over the greater part of the continent, extending as far south as Madras. Moreover, a nearly allied fossil species found in the Siwalik Hills of northern India, of which a tooth is represented in Fig. 1, indicates that this type of rhinoceros has existed in India from a date when the country was peopled with a host of extinct mammals quite unlike any now living.

The Javan rhinoceros is so-called on account of being the only species inhabiting Java; but, far from being confined to that island, is also found in Sumatra, Borneo, the Malay Peninsula, Burma, Assam, and the Bengal Sanderhans. At the shoulders, according to Mr Blanford, it stands scarcely, if at all, lower than the Indian rhinoceros, but is a smaller headed and smaller bodied animal. Precise measurements of adults are, however, still wanting, and sportsmen will do good service to natural history by supplying this deficiency. Single-horned fossil rhinoceroses closely resembling this species in the structure of their molar teeth are found in the Siwalik Hills of Northern India, thus indicating that India was probably the original home of this type. What, however, is far more remarkable is the occurrence of remains of a rhinoceros probably allied to this species on the Hundes plateau of the Himalaya at an elevation of some 10,000ft. And since it is highly improbable that the Himalaya can have been raised to such a stupendous height since the comparatively recent epoch when these rhinoceroses lived, the minds of some writers have been much exercised to discover how such creatures could have acquired sustenance in regions now so barren and desolate. When, however, we remember, that the yak—a near ally of the bison of the plains—flourishes in these regions, we fail to see why a rhinoceros allied to one now dwelling in the plains of India should have had any special difficulty in adapting itself to similar conditions of life.

The Sumatran, or two-horned Asiatic rhinoceros (*R. sumatrensis*), has nearly the same distribution as the preceding species, but is unknown in lower Bengal and Java, and is found in Siam. This is by far the smallest of all living rhinoceroses, the average height of full-grown individuals being estimated by Mr Blanford at from 4ft. to 4½ft. One adult female measuring only 3ft. 8in. at the shoulder has been recorded. In regard to its horns this rhinoceros affords the sportsman far more satisfactory trophies than either of its Asiatic cousins. Above their bases both horns are slender and well-formed, the longer front one, corresponding to the single horn of the other species, when well developed, sweeping backwards in a shapely curve. The largest horn hitherto recorded measured upwards of 32in. along the curve, but anything like this length is very rare.

The Sumatran rhinoceros is far more hairy than any other living member of the genus; but there is considerable individual variation in this respect, and also as to the colour of the body and hair, that of the former varying from an earthy brown to black, while that of the latter is some shade of brown or black. It was an unusually long-haired specimen, of a light colour, and with the edges of the ears fringed with long hairs, which led Mr Selater to believe that there were two living representatives of this group. Accordingly, it was proposed to distinguish the more hairy form, in which a rufous tint prevailed in the hair, as a distinct species, under the name of the hairy-eared rhinoceros (*R. lasiotis*). In spite, however, of certain differences in the form of the skull, this new departure has not commended itself to the majority of naturalists, who prefer to regard the more hairy form merely in the light of a variety of the Sumatran species.

The Sumatran rhinoceros is a forest-dwelling animal, whose diet probably consists mainly of leaves and twigs. In this respect it agrees with the Javan species, which has molar teeth of precisely the same structure; this type of tooth, some shells



Fig. 1. A left upper molar tooth of a rhinoceros, in a half-worn condition. The lower border of the figure is the inner side of the tooth.

the figure, be entire, or may be divided into two columns, from which two oblique transverse ridges run towards the inner border of the crown, where they generally terminate in more or less expanded columns. A comparison of an

and the coachmen and their passengers spend a very pleasant afternoon, the Steeplechase Society providing them with abundance of strawberries, ices, and other light refreshments, while some good music plays in the intervals of the racing. This, itself, was not particularly good, and as the few English and Irish horses which had come over to compete for the big steeplechase and hurdle races had gone home, there was no "international" feature in the sport, which might be passed over without notice but for the reappearance of Saïda in the Prix des Drags. This was the fourth time within nine days that this game little mare had run, and, although she had done so much work, she was once more made a favourite, the opposition being very weak. She ran well, but was just beaten at the finish by Padmana. One was sorry to see her thus defeated, but there was at least the satisfaction of knowing that, having run four races over a distance of about eleven miles, she would now be given a rest. Such, at least, was what many of us said to ourselves on leaving Auteuil; but it appeared that we did not know our man, for Baron Finot actually pulled her out again on Monday to run for a steeplechase of £160, giving as much as 33lb to one of her opponents. The poor little mare, who had never before made a mistake, was so weak on her legs, that she fell at the brook opposite the stand; and although Baron Finot must be supposed to know his own business best, it does not seem possible that there can be any excuse for overtaxing the powers of a mare who has always run so stoutly and done him such good service. M. Camille Blanc's Assuérus, who had run second to Le Gourzy in the big hurdle race, got rid of his rider at the same fence, and the steeplechase was won by Galantin, an English bred son of Dutch Skuter who distinguished himself at Nice last year, while another of the steeplechases at Auteuil on Monday was won by Tolède II., whose victory, following upon one secured three days before at Auteuil, I only mention because he is a son of Furfadet, who has just died at the stud of M. de Tracy near Moulins. Furfadet was also the sire of Ermak, who has been running at Ascot this week. He has been fairly successful at the stud, and the blood of Monarque is beginning to get somewhat rare.

The Museum of Natural History in the Jardin des Plantes has been reinforced during the last few days by a very valuable present sent by the Jardin d'Acclimatation at Saïgon, this consisting of two magnificent Indo-Chinese tigers, a pair of Nyctilepian monkeys, of which there was not a single specimen in any of the French collections. The monkeys, as their name implies, are, like bats and owls, affected by "nyctilepia" and sleep all day. Being carnivorous, they do a great deal of damage in the districts of Cochinchina, where they abound. They are of about the size of a rather big rat, and when they walk on their four legs their breasts and stomachs almost touch the ground. During the voyage from Saïgon, they were fed upon eggs and live birds, a large supply of which had been taken on board for that purpose; while the tigers, which are extremely fierce, were brought over in a double cage, the male animal not being at all affected by the sea, whereas the female was ill part of the time. They are being kept out of sight for the present, but in the course of the next few days they are to be on view at the Jardin des Plantes, which, unfortunately, is at the extreme end of Paris.

C. B. P.

QUICK TRAVELLING.—The distance between Glasgow and Belfast is 116 miles, and it is now daily being done by the Caledonian Railway between Glasgow and Ardrossan, and by Messrs Burns' R.M.S. Adder between Ardrossan and Belfast, in 300 minutes; and if ten minutes is allowed for transference at Ardrossan, it will be found the journey is done at the rate of two and a half minutes for each mile.

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our figure of that of a rhinoceros will, indeed, reveal a great difference between the two, although a more careful examination will show a general uniformity of plan. Much of the difference between the two is, however, due to the great elevation of the crown of the tooth of the modern horse, and also to the filling up of the hollows which occur in that of the rhinoceros by the comparatively soft substance known as cement. And it will be found that the molar teeth of the ancestral horses were very like those of rhinoceroses in their general structure.

Having said this much as to the relationship of rhinoceroses to the other odd-toed ungulates, we may proceed at once to our notes on the former animals, since, whatever may be the case when extinct types are taken into consideration, no one is the least likely to confound a rhinoceros with any other living animal.

Among few groups of our larger mammals has there been a greater diversity of opinion as to the number of species that exist, than is the case among the rhinoceroses. Thus in 1869 the late Dr J. E. Gray, of the British Museum, considered that he had evidence of no less than ten species of living rhinoceroses, of which six were Asiatic, and the remaining four African. Somewhat later on Mr Selater came to the conclusion that there was another Asiatic species different from any of those described by Gray, while some other writers have thought that a hornless rhinoceros from the Sanderbans of lower Bengal indicated yet another species. If all these so-called species were admitted as valid, the number of living rhinoceroses would thus reach a round dozen. This, however, is not all, for, instead of following the good old Linnæan plan of including all of them in the single genus rhinoceros, Dr Gray came to the conclusion that such an arrangement was far too simple and straightforward for the needs of the scientific zoologist, and he accordingly split up the living rhinoceroses into four distinct genera, two of which are African and two Asiatic.

Fortunately, however, for the popularisation of zoology there is now a tendency, at least in England, for greater simplicity of arrangement, and all the rhinoceroses are once more included in the old Linnæan genus. Then, again, instead of the ten or twelve species referred to above, most writers are now agreed that there are but five living species of rhinoceroses, of which two are African and three are Asiatic.

While agreeing in their clumsy build, and the presence of three toes to each foot, existing rhinoceroses differ from one another, both in regard to the number of their horns, and also as to the presence or absence of tusks and cutting-teeth in the front of the jaws, while there is a further distinction due to the presence of marked folds in the skin of certain species, which are wanting in others.

On the whole, while the variation in the number of the horns seems to be a character of minor importance, the other two points of difference carry greater weight. Thus, whereas two of the Asiatic rhinoceroses have but a single horn apiece, the third, which is otherwise nearly related, has two of these appendages. On the other hand, the whole of the three Asiatic species have the skin thrown into more or less strongly-marked folds, and are furnished with tusks and cutting-teeth in the front of the jaws; whereas the two African species are distinguished by the absence of both those features.

Both the Asiatic one-horned rhinoceroses have comparatively small and insignificant horns, which afford but poor trophies to the sportsman. In addition to its much larger bulk, and the thicker folds of its tubercle-covered skin, the great Indian rhinoceros (*R. unicornis*)*, which is strictly confined to the country from which it takes its name, is distinguished from the Javan rhinoceros by the structure of its upper molar teeth—the difference being so great that a single tooth is sufficient to decide to which species it belonged. Thus, whereas the upper molars of the Indian rhinoceros are very similar to the fossil tooth represented in Fig. 1, having a nearly straight outer wall and very tall crowns, those of the Javan rhinoceros have shorter crowns, with the outer wall much curved, so as to form a kind of buttress at the front angle of the tooth (the left top corner of Fig. 1). A further peculiarity connected with the type of molar teeth occurring in the Indian rhinoceros is that the grinding-surface of the crown forms a nearly level plane; whereas in the Javan species it is raised into two distinct ridges. In consequence of this difference, the jaws of the Indian rhinoceros have

* Often improperly referred to as *R. indicus*.

invariably associated with leaf and branch-eating habits, while the type found in the Indian rhinoceros indicates grass-eating habits. The Sumatran rhinoceros is especially addicted to hilly districts, and has been found in Tenasserim at an elevation of 4000ft. Mr E. Bartlett states that it is now becoming rare in most parts of Borneo. So far as our present information permits of judging, it would appear that rhinoceroses of the type of the Sumatran species are comparatively recent immigrants into the east, since their remains are unknown in the rocks of the Siwalik Hills and other Indian fossiliferous deposits. Extinct European rhinoceroses found in the Lower Pliocene and Upper Miocene deposits of the Continent, such as Schlegelmacher's rhinoceros (*R. Schlegelmacheri*), attest, however, the antiquity of this group of the genus; and, taken in connection with other fossil animals, show that there has been an eastward migration in later times of types formerly inhabiting western Europe.

R. LYDEKKER.

THE WILD BIRDS PROTECTION ACT.

SIR.—The usefulness which has characterised the working of the Wild Birds Act in many parts of the country has been so generally acknowledged, that Mr Lovett's complaint of its inefficiency in his neighbourhood does not carry much weight. Of course the Act is vexatious to scientific collectors, and renders work at the vernal migration almost useless, so far as concerns some of the rarer species. Only a few springs ago I met with a sandpiper which I felt convinced was a Terek sandpiper (*Terekia cinerea*). Had I been free to carry a gun, this species would probably have been added to the British list. Similar instances have no doubt occurred to other ornithologists. But the effect of the Act upon moral opinion is, that there is a spirit all over the country in favour of protecting birds. Mr Lovett's regret that he did not shoot a skua is no doubt natural; but surely to see a rare bird escape destruction is a greater pleasure than the converting its skin into a specimen? I have seen Richardson's skuas, and Pomatorhic skuas too, on our coast in the close time; but it never occurred to me that the proper thing to do was to shoot the poor things, because these species are easily identified on the wing.

In the north-west of England several species have increased greatly since the passing of the Wild Birds Protection Act; amongst others, the Sandwich tern, redshank, sheldrake, and oyster-catcher are all more numerous than formerly.

I have often grumbled myself at the inefficiency of this Act, but we should be much worse off without it. To take a practical instance. Certain marshes in the English Solway faunal area are the breeding grounds of many redshanks, oyster-catchers, terns, dunlins, peewits, ringed plover, &c. These marshes are situated within easy reach of Carlisle, and they are regularly swept of eggs by the dealers. I have often taken ornithological friends over the ground, only to find nest after nest harried of its contents. This is distressing enough to those of us who try to protect breeding birds. It reflects discredit on those who support the dealers by purchasing large series of local eggs; but if there were no Wild Birds Protection Act, the parent birds would all be shot. Only a few days ago, one of the men who daily rob the nests of their contents told me that he had received an order for some of the nesting terns in the flesh. I told him to wait until the autumn. He answered that his customer must have them in the fresh plumage of the breeding season; but the fear of the Wild Birds Protection Act being enforced will, I think, in this, as in so many other instances, protect the old birds. H. A. MACPHERSON.

Carlisle.

WEIGHT OF LIONS.—Mr Rowland Ward makes a mistake, in your issue of April 9, in styling me president of the S.A. Sportsmen's Association. This honour belongs to his Excellency the Governor. At the time of writing Mr Ward I was president of the Queenstown branch of the association, hence the mistake. The lion referred to as weighing 563lb. ought to have been 583lb., and was shot at Koppie Aleen, Orange Free State, in 1865, and put on scale about five hours after being shot. It was a large lion, in the prime of life, full of flesh, but not fat. I once afterwards saw a lion that would have weighed a little more, owing to better condition. I therefore fancy there must be some error in Mr Frederic Collier's figures, averaging lions of 6 years at 10cwt. or 10½cwt., or nearly double the weight of the wild animal.—P. MCGILWIE (Whittlesea, May 3).