

not enough to warrant us in pushing the Ruminants between the Carnivora and the lower apes.

The woodcuts and lithographic figures of this paper are not very clear, even with the aid of red ink to distinguish the outline of the section of a skull from its profile, when printed together; and there are several printers' errors, e.g., *Hydracherus* for *Hydrochoerus*, and what is more important, *hintre* is put for *mittlere* (p. 27).

Prof. Lucae modestly compares his work to that of a hodman, who has plenty to do when kings build their palaces. These royal castle-builders are of course the more or less adventurous theorists who construct their *Stammbäume* by help of such anatomical details as are here collected. All zoologists, whether, like Lamb's nurse, "wise and wondrous skilled in genealogies," or contented to work out the raw material which is always necessary, will welcome such contributions to osteology as the present, which forms so excellent a continuation of the author's previous labours on *Raçenschädel*, and will hope that they may be still further extended in the same direction.

P. H. PVE-SMITH

SYMONDS' RECORDS OF THE ROCKS

Records of the Rocks. Notes on the Geology, Natural History, and Antiquities of North and South Wales, Devon, and Cornwall. By Rev. W. S. Symonds, F.G.S. (London: John Murray.)

MR. SYMONDS is an enthusiast, and one of the best type. In the intervals of his clerical work he is pretty sure to be found either with his hammer among quarries, ravines, and railway cuttings, or exploring some crumbled ruin or mouldered encampment, or lecturing volubly to a hill-side auditory on the rocks beneath their feet, or showing his well-known features at the sectional meetings of the British Association. Such have been his favourite pursuits for some thirty years. In the present volume he gives us jottings from the note-books which record his doings during that long period. The book is not a formal scientific treatise, nor does it follow any definite geographical sub-division in the districts described. An introductory chapter of a somewhat miscellaneous kind is followed by ten others devoted to the various palæozoic formations of Wales and the South-west of England. But the writer does not confine himself to the geology of the various districts, he has much to say about antiquities and natural history, and says it pleasantly enough. Nor does he restrict his remarks to those parts of the country mentioned in the title-page, for he has been away up even into the wilds of Sutherlandshire, and tells about the rocks there and the alpine plants, and the minerals, and the old glaciers, and how he broke a trusty rod in fishing for salmon there. He makes his way cheerily wherever he goes, and duly chronicles the kindness shown to him. The perfect honesty and candour of the writer are conspicuous throughout. Now and then, however, the delight with which he has seen a fact for himself leads him to write as if nobody had seen it before him. For instance, on p. 91, he tells that "on an expedition two years ago in company with Captain Price, I ascertained that the quartz-rock of Queenaig with its tubes rests unconformably on Cambrian sandstone." A very good observation, Mr. Symonds, but not unknown before you and the Captain were up there.

The illustrations, which are numerous, have been largely taken from Murchison's "Siluria;" but we can specially commend some new engravings from drawings by Sir William Guise—admirable both for their artistic conception and geological truth.

OUR BOOK SHELF

Yarrell's History of British Birds. Revised by Alfred Newton, F.R.S., Professor of Zoology in the University of Cambridge. Part V.

THE improvement which Prof. Newton's excellent edition of Mr. Yarrell's work is undergoing by passing through the hands of its accomplished and assiduous editor, is evident on every page, and the care with which the large mass of literature on the subject of most of the species has been studied, must be evident to all readers. The chief features of this part are the following. The author has entered with considerable detail into the puzzling question of those forms or species of blue-throat, *Ruticilla suecica*, *R. leucocyana* and *R. wolfi*—of which the first only can be said with certainty to have occurred in this country. The so-called "Melodious Willow Wren," of which two examples have been met with in the British Isles, is shown on Mr. Dresser's authority to be the Icterine Warbler (*Hypolais icterina*), and its distinction from the nearly allied Polyglot Warbler (*H. polyglotta*) is carefully pointed out, and it may be mentioned that these two birds have only a superficial resemblance to the true Willow-wrens, among which they have been erroneously placed by most British authors. The evidence as to the occurrence of the Marsh Warbler (*Acrocephalus palustris*) in England is shown to be very defective, and the editor declines admitting it at present to our fauna. The Aquatic Warbler (*A. aquaticus*) on the other hand, seems to have been obtained some three if not four times. The history of that very interesting species Sadder's Warbler (*A. luscinioides*) is fully given, more so than is done in any other work with which we are acquainted. It was doubtless in former days a regular, though never a very abundant summer visitant to the eastern counties of England, until the drainage of the meres and fens unfitted wide districts for its habitation. The first example of the species ever brought to the notice of naturalists was obtained early in the present century by a party of Norfolk observers, including the late Sir William Hooker. This specimen was in 1816 shown to Temminck, then on a visit to London, and by him said to be a variety of the Reed Wren, a bird from which it may be fairly separated generically. Some years after, Sair described it from Italian examples, and it has always had the reputation of being a southern species. But it is to Englishmen that we owe nearly all the information we possess concerning it. Its nest and eggs were discovered near Cambridge in 1845, three years before anything was published about them on the Continent, and its peculiar habits have been chiefly described by Englishmen, from their own observation, whether in this country or abroad. The account of this species has been written *de novo*, and great pains has indeed been taken to bring the history of all the other birds treated in this part (fourteen in number) up to our present state of knowledge of them.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. No notice is taken of anonymous communications.]

Cave-deposits of Borneo

THE following letter from Mr. Everett to myself was accompanied by a plan and section of one of the caves visited by him and partially excavated. The deposits were as follows:

	ft.	in.	ft.	in.
1. A thin layer of stalagmite.				
2. Black impure guano	0	3	to	1 0
3. White clay with <i>Potamidés decollatus</i>	1	0	,,	2 6
4. Guano			variable	
5. Débris of clay and guano, with fragments of limestone and stalagmite in abundance... ..	?	2	0	to 3 0
6. Pure yellow felspathic clay	4	0	,,	5 0
7. Limestone floor.				

This particular cave could not be readily worked owing to the influx of water, but other caves exist at higher levels, which would be more promising. The expense for six months' work, according to Mr. Everett's estimate, would not be more than the mere passage-money of anyone going out from England. I may add that Mr. Everett quite understands the proper mode of working, having had personal communication with Mr. Pengelly on the subject at Kent's Cavern. He is now thoroughly familiar with the country and the workmen to be employed, and it seems a great pity that advantage should not be taken of his residence in so interesting a locality, the proper exploration of which may throw light on a variety of biological problems.

ALFRED R. WALLACE

"You will recollect that some three years ago I came to Sarawak with the object of making general collections of natural history and, more particularly, of investigating the cave-deposits of Borneo.

"From time to time I made excavations in various caves situated in Upper Sarawak, being assisted pecuniarily by the Rajah to a certain extent. These excavations varied in depth from 4 ft. to 14 ft., and were made in different situations in the caves. No remains of interest, however, were discovered beyond some teeth of a *Hystrix*, and bones of man, bats, geckoes, &c., in the most superficial deposits, and the only result worth recording was the find of a stone axe-head in a bed of river-gravel. This celt was forwarded to Sir C. Lyell, and such remains as were obtained from the caves were sent to Messrs. Busk and Pengelly at intervals; but the latter, together with a recent tooth of *Rhinoceros* and two collections of miscellaneous specimens, appear to have been wrongly transhipped in Singapore, and I have never been able to trace their whereabouts.

"After considerable observation and experience I now wish to state with all frankness my belief that my work was not carried on as it should have been, and that the non-existence of ossiferous deposits in the Bornean caverns is very far from being a proven fact. The inquiry as conducted by myself was not thorough, and it was unsatisfactory partly because I was in serious pecuniary difficulties myself, and partly because what I saw of the poverty of the Government and the remarks I heard dropped about the folly of expending money on such objects made me very shy of taxing the Rajah's liberality. I was, and am still, persuaded that the expense of cave-working in a country like this would have proved very much heavier than the Rajah had any idea of, and hence I worked with inadequate support.

"In the event of those who are interested in the exploration being desirous of having it continued, I venture to suggest that the person chosen for the work must either possess considerable private means or he must be employed at a regular salary; and further, that the work should be carried on with sufficient funds to render it independent of any assistance the Government here might afford. Money is so scarce here, and public wants so many and pressing, that assistance for purely scientific objects is not to be expected. Coolies are not procurable now under a wage of 2*l.* a month, and, owing to the rivers being the only roads, travelling expenses are heavy. For tools, lights, gunpowder for blasting, and such preliminary expenses, a sum of 15*l.* would be sufficient; and the monthly working expenses would vary from 10*l.* to perhaps as much as 15*l.*, according to the accessibility of the cave to be explored; so that for working a cave for three months a sum of 65*l.* would probably be required.

"As I am now employed in the Government service, I do not think I could undertake the work unless a formal application was made to the Rajah for the necessary leave of absence. Even were leave obtained, I do not suppose that I should continue on Government pay, and I could not afford to undertake the work under a salary of 25*l.* per month. The cheapest way of conducting the exploration would be to send out a gentleman of independent means who would do the work for its own sake, and then only the actual working expenses need be subscribed for. Supposing

remains were ultimately found, the item of freight would have to be added to the working expenses.

"I am induced to write you this letter from reading a note in *NATURE* for June 13, 1872, with regard to the Victoria caves, in which two years of constant but seemingly fruitless work has in the end proved successful. Trusting that another exploration may be attempted in this far more important field, and with like success, I remain, &c.,

"A. EVERETT

"To A. R. Wallace,
"Sarawak, February 1, 1873"

A Fact for Mr. Darwin

THE interesting fact contained in the following passage appears to me to deserve disinterment from the pages of a very large book, a work too, which, so far as I know, has never been translated. It occurs in the "*Espéologie Générale*" (Par Duménil et Bibron, tome vi. p. 467), and I met with it while employed in working out a collection of reptiles, which I was engaged in classifying. The passage is as follows:—"Dans les villes d'Égypte, on rencontre souvent des charlatans exposant à la curiosité publique des *Eryx javelots vivants* auxquels, afin de les faire passer pour des *Céastes*, ils ont en le soin d'implanter, en manière de corne, audeussus de chaque œil, un ongle d'oiseau ou de petit mammifère, par le même procédé que celui qu'on emploie dans nos fermes pour fixer deux ergots sur la crête de certains coqs quand on les chaponne.

"C'est d'après des individus ayant la tête ainsi armée de deux fausses cornes, qu'Haselquist a fait son *Anguis cerastes*. Nous avons dans les collections du musée des individus dont la tête porte ainsi des ongles recourbés d'oiseau, avec leur cheville osseuse, dont l'adhérence à la peau est parfaite."

Here is a fact, not only well authenticated, but capable of verification, demonstrating such close affinity of intimate structure and function between animals of *different classes*, that the skin appendage of one has been actually engrafted upon the skin of the other; the claw of a bird has formed perfect union with the skin of a snake. A good illustration of the affinity between birds and reptiles pointed out by Prof. Huxley.

I do not notice that statement about the claw of a small mammal being used for this purpose, because specimens illustrating it are not referred to.

The snakes alluded to in the passage are the *Eryx jaculus* (one of the *Erycidae* or sand-snakes of Dr. Günther), which is perfectly harmless: and the *Cerastes Haselquistii*, a small but fierce and venomous viper; both inhabiting Egypt, and the latter supposed to have been the "asp" of Cleopatra. The *Cerastes* obtains its name from the so-called "horns," peculiar to the males, which are developed from modified scales over the centre of each orbit, attaining the length of about half an inch. The *Eryx* is about the same size as the *Cerastes*, for which it is passed off by the Egyptian snake-charmers, when manufactured as above described.

H. D. MASSY

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The Phœnician Vademeum

It is gratifying to see (vol. vii. p. 351) that you express a doubt whether the Cowrie shells in the Pomeranian barrows must necessarily, as Wagner supposes, have been brought by the Phœnicians. Because the earliest Greek historians introduced the Phœnicians to us they have been employed as a universal machinery for carrying out all kinds of operations. This theory is in fact incompatible with our present knowledge of the duration of the human race, and, we may say, with the relative antiquity of the Phœnician epoch, which can date but little beyond the historic period. Thus we are led to neglect the evidences of skulls, weapons, tools, monuments, and languages, which show that there must have been communications between distant regions long before the rise of the Phœnicians. There are many prehistoric races which had a sufficiently wide distribution to provide for the dissemination of such a small object as the Cowrie. Among these may be named the dwarf or short races, of which the Mincopies of the Andamans are a type; the race now represented by the Agavs of the Nile, Avkhass of Caucasus (Achivi), and Omagua and Guarani of Brazil; and the Dravidian race. Populations which could distribute men over the continents and islands of Europe, Africa, Australia, and the Americas must have been capable of distributing cowries and beads without Phœnician intervention. At present the Phœ-