

Japan and Europe live in insular climates, while those of Siberia occupy an area with a continental climate. I do not think many biologists can accept this explanation. England and Japan are 3700 miles apart. That a single bird whose normal type is found in Siberia should vary from that type in two areas thus remote from one another in precisely the same way is perhaps possible. That a whole string of birds (and I only mentioned a sample) should do the same is, it seems to me, when tested by the doctrine of chances and the infinite variability of bird structure and colour, an impossibility.

Apart from this *a priori* argument, we have the fact—which is, of course, known to Prof. Newton—that Blakiston's line separating Yesso and the southern island of Japan also separates two avifaunas, and that the species on each side of the narrow strait of Yesso are in many cases different, although they live in insular areas close to one another, and subject to virtually the same insular climate, while those of England and Japan, whose climate is not so like, are undistinguishable. I cannot, therefore, for a moment accept Prof. Newton's theory as in any way meeting the facts which are admirably met at every point by the theory which I have propounded, and which is not based on the variation of the birds alone, but upon a whole *catena* of converging evidence from many sides, the evidence of the birds being only a subsidiary support.

I am sorry that I had overlooked Prof. Newton's article in the "Encyclopædia," and am glad that my suggestion about the red grouse, which I can assure him was quite independently made, had already occurred to and been countenanced by so distinguished an ornithologist, against whom I hear continual complaints, which ought to be very flattering, that he writes too little.

Reverting to the main issue, it is a great pleasure to me to have Prof. James Geikie's permission to publish an extract from a letter which he has sent to me, in which he is completely at one with me in the conclusion that, when the mammoth lived, the climate of Siberia was temperate, and that it lived where its remains are found. This is particularly gratifying to me, not only because Prof. J. Geikie is the most learned and voluminous writer upon the so-called Pleistocene age, his stout volumes being marked as much by their extraordinary profusion of references and of facts as by their lucid arrangement, but because upon some of the main conclusions I have arrived at he takes a very different view. Prof. J. Geikie says:—

"I do not need to be converted to the view that Siberia formerly enjoyed a temperate climate. If you will consult the first edition of my 'Great Ice Age' (p. 494), you will see that my belief for the last fifteen years has been that the mammalian remains of North Siberia are the relics of a fauna that lived and died in those now dreary regions. Indeed, I had that notion when I first began to read what had been written upon the subject some five-and-twenty years ago! I was willing, however, to admit the possibility of some of the remains having been drifted north by rivers. But it has always seemed to me inconceivable that this drifting would account for the presence of such great ossiferous accumulations as travellers have described. I likewise long ago discarded the notion of seasonal migrations, such as Dawkins and others have maintained (see *Geol. Mag.*, 1872, p. 164; 1873, p. 49)."

I shall not labour the argument further, nor shall I enlarge upon what I deem to be an inevitable corollary from it—viz. that if the climate of Siberia was temperate when the mammoth lived, and if it lived where its remains occur, on the now bare and almost perpetually frozen *tundra*, it follows that its extinction there must have been followed by a most rapid, if not a sudden, change of climate. The existence of its *undecayed carcasses* in all parts of Siberia, from the Obi to the Indigirka, is consistent only with this conclusion. If the change of climate had been gradual, the flesh of the great beasts could not have been preserved intact, but would have putrefied and decayed. This was long ago seen and emphasized by Cuvier, and even Lyell was constrained to write:—"It is certain that, from the moment when the carcasses both of the rhinoceros and the elephant above described were buried in Siberia, in lat. 64° and 70° N., the soil has remained frozen, and the atmosphere as cold as at this day." Again, he says:—"One thing is clear, that the ice or congealed mud in which the bodies of such quadrupeds were enveloped has never once been melted since the day when they perished, so as to allow the percolation of water through the matrix, for, had this been the case, the soft parts of the animals could not have remained undecomposed." It was to avoid the necessarily awkward inference from this conclusion,

for one who preached uniformity so continuously, that Lyell was forced to invoke his theory of river portage, which is no longer tenable, and, so far as I know, is no longer held by any serious student.

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Bentcliffe, Eccles, February 3.

Peripatus in Victoria.

IT may interest some of the readers of your journal to know that last week, while collecting in a fern-tree gully at Warburton, on the Upper Yarra, Victoria, I had the good fortune to discover two specimens of *Peripatus*, belonging, as I think, to a new and certainly to a very beautiful species.

I hope to publish a full description, with figures, of the species as soon as possible, but I am now preparing for a visit to Tasmania, and some time must necessarily elapse before I can complete the work. I should therefore be greatly obliged if you could find space for this letter in NATURE.

In his "Monograph on the Species and Distribution of the Genus *Peripatus*," recently published in the *Quarterly Journal of Microscopical Science*, Prof. Sedgwick makes no mention of the occurrence of the genus in Victoria; though he describes in detail the Queensland and New Zealand species. In a note in the Proceedings of the Linnean Society of New South Wales (vol. ii. Part 1, 1887), however, Mr. Fletcher has recorded the discovery of the genus in Victoria. He says, "The specimen which I exhibit this evening was given to me a fortnight ago by my friend Mr. R. T. Baker, of Newington College, who had obtained it a few days previously either in or under a rotten log at Warragul, Gippsland, Victoria. It has fifteen pairs of claw-bearing appendages, and has nearly the same dimensions as are given in the abstract referred to; it is therefore in all probability an example of *P. leuckartii*, Säger."

From Mr. Fletcher's account I am not able to say definitely whether the specimens obtained by me belong to the same species as the single specimen which he mentions; but after carefully studying Prof. Sedgwick's full description of *P. leuckartii*, I am fairly certain that they do not belong to that species, but to a new one which I for the present refrain from naming.

Both of my specimens were captured under fallen logs, where they were lying quite still. The first appeared to be dead soon after it was caught, and was therefore placed at once in alcohol. The second was found under a damp, rotten log, probably of *Eucalyptus*, in the same gully. It was taken home alive and put to crawl about on a newspaper, when it appeared very active. It elongated considerably when crawling, so that the legs came to be much further apart than when the animal was at rest, and when crawling it measured about 39 millimetres in length, excluding the antennæ. When irritated at the head end it ejected a surprisingly large quantity of an intensely sticky fluid, of a whitish colour, from the oral papillæ.

The species has, as in the two already described Australasian forms, fifteen pairs of claw-bearing legs, but it differs very strikingly indeed both from *P. leuckartii* and from *P. novae-zelandiæ* in the colour and markings of the body. The general tint is brownish red, with only traces in one specimen of the bluish colour so characteristic of the two above-mentioned species. The markings on the body are singularly distinct and well defined, and identical in the two specimens. All down the dorsal surface there runs a median broad reddish-brown or chestnut-coloured band, divided into a series of diamond-shaped patches by regular lateral indentations, one diamond corresponding to each pair of legs. In the middle of this band there is a thin, median, whitish line. On either side the chestnut-coloured band is edged by a narrow black line, which follows the indentations of its margin, and outside this comes a broad band of darker brown, and then, at the edge of the dorsal surface, a narrow band of light brown. The ventral surface is light yellowish-brown, speckled with spots of very dark pigment, especially abundant at the base of each leg. In the mid-ventral line there is a row of white spots, one between the two legs of each pair except the first (?) and the last (where, of course, the genital opening is situated). The antennæ are light brown, closely ringed all the way up with very dark brown or black.

This species, though small, is to my mind even more beautiful than any of those figured by Prof. Sedgwick, and I think there can be little doubt as to its distinctness. The anatomical features I hope to describe at a later date, and perhaps they will throw further light upon its relations to previously described forms.

ARTHUR DENDY.

University of Melbourne, December 18, 1888.