LETTERS TO THE EDITOR.

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Peripatus in the Malay Peninsula.

MY friend Mr. Richard Evans, of Jesus College, Oxford, now in the Malay Peninsula with the Skeat Expedition sent out by the University of Cambridge, writes to me that he and subsequently other members of the expedition have discovered Peripatus. His letter, written from Aring, Kalantan, and dated August 27, states that he had found two specimens about three months previously. The locality is given as "one of the mountains here." For some months after this discovery no further specimens were found, in spite of much searching. A little before the date of his letter, however, Mr. Laidlaw, of Cambridge, had found five and Mr. Evans six additional specimens, thus bringing up the number to thirteen.

The eleven specimens which were obtained last were found in two groups of five each, while a single individual was discovered by itself in the rotten tree in which one of the groups occurred.

The individuals of a group differed much in size, although each group was probably a brood.

The colour of the specimens is chocolate-brown above with numerous small pale spots, the under-surface being pinkish yellow with a nearly white spot between the feet of each pair.

The number of pairs of feet varies from twenty-three to twenty-five, the latter number occurring in the largest and presumably the oldest specimens.

Mr. Evans has asked me to embody these facts in a note to NATURE, and I feel sure that they will be of great interest to all naturalists. EDWARD B. POULTON.

Oxford, October 13.

Dark Lightning Flashes.

THE paper by Mr. A. W. Clayden, referred to in my lecture from which Dr. Lockyer quotes (p. 570 *ante*), is entitled "Note on some Photographs of Lightning and of Black Electric Sparks," and is to be found in the *Proceedings* of the Physical Society, vol. x. p. 180, having been read on June 22, 1889. The author's photographs were exhibited at the meeting, but were not printed with the paper.

The following extract shows that some of Mr. Clayden's observations were very similar to those described by Dr. Lockyer. He photographed some electric sparks of different intensities, "and before developing the plates exposed them to the diffused light from a gas flame. The brilliant sparks then yielded images which may either be called normal with a reversed margin, or reversed with a normal core. The fainter sparks were completely reversed. . . . The reversal seems to spread inwards as the exposure to diffused light is increased." If the section of a flash is approximately circular, the luminosity would naturally be greatest along the middle, gradually falling off towards the edge.

It was of course known long before the date of Mr. Clayden's paper that the bright parts of a photograph might be reversed by the action of diffused light before development (Sutton's "Dic. of Photography," edition of 1867, p. 299).

I think it hardly possible that any lightning flash would be sufficiently brilliant to give a photographic image with a dark core and bright edges—Nos. 5 and 6 of Dr. Lockyer's list. The image of the sun itself is not generally reversed, unless with comparatively long exposure. The picture in the *Strand Magazine* (vol. xiii. p. 44, Fig. 10), which I understand to be the only apparent example of this class of reversal which Dr. Lockyer has met with, seems to me, from considerations of perspective, to represent beyond question merely a close double flash, two connected discharges having taken the same path through a moving body of air.

Dr. Lockyer's convincing article has no doubt finally disposed of the dark flash as an objective reality. It is to be hoped that so-called "ribbon lightning" will soon follow in its footsteps. SHELFORD BIDWELL.

Heredity and Variation.

THE interesting suggestion made by Prof. Adam Sedgwick in his Dover address—to the effect that variability has decreased and heredity increased, so to speak, as evolution has progressed—leads me to call attention to the work of certain other writers. Prof. Bailey, of Cornell University, in his work "The Survival of the Unlike" (Macmillan) argues in detail for a similar view, *i.e.* that heredity has been gradually "acquired," while variability has been reduced. His book deals largely with evidence from plants. He stated the view earlier in certain papers. Moreover Prof. Williams, of Yale University, independently took up a like position at about the same time in several papers, the latest one having been read and discussed before the Society of American Naturalists at Ithaca, N.Y., December 1897, and subsequently printed in *Science*.[1] The point of view has become fairly familiar to American biologists. Indeed the editor of *Science* has referred to it as one of the two most important recent suggestions in the theory of evolution. As Prof. Sedgwick does not refer to these writers—though he may intend to do so in the fuller discussion which he promises—his readers to whom the suggestion appeals may find it worth while to look into them. The work of Prof. Bailey—who is a natural selectionist among botanists!—is remarkable from other points of view as well.

Oxford, October 10. J. MARK BALDWIN.

Phosphorescent Earthworms.

IN a recent issue of NATURE (during May of the current year) Mr. Beddard, in referring to the phosphorescence of *Microscolex* (*Photodrilus*) and of *Allolobophora foetida*, suggests that this phenomenon is exhibited by the slime secreted by the epidermis. Will you allow me to mention my observation on a New Zealand worm that indicates that the matter is worthy of re-investigation?

Our large white earthworm (*Octochoetus multiporus*) has a milk-coloured cœlomic fluid of very great tenacity; it can be drawn out into strands, and soon hardens on exposure to air. In the dark, when the worm is handled, this fluid is discharged abundantly from the dorsal pores and from the mouth, which it reaches through the "peptonephridia" opening into the buccal cavity. The fluid is brilliantly phosphorescent when freshly discharged, and the fluid sticks to one's fingers very persistently; but it soon loses its phosphorescence. I wish here merely to point out that the luminosity is due to the cœlomic fluid in *O. multiporus*, and I believe that further examination will show that the same is true of *A. foetida*.

The fluid in *O. multiporus* contains numbers of "elæocytes," which are present also in *A. foetida* and other European worms; but in the New Zealand worm they are colourless, not yellow. A very remarkable kind of corpuscle is also present, viz. a cell containing a threadlike structure not unlike those described by Goodrich in an enclytrœid a few years back. I am now endeavouring to locate the phosphorescence—that is, to ascertain which of these two cells is the seat of the phenomenon.

Dunedin, N.Z., August 5. W. BLAXLAND BENHAM.

MEETING OF THE INTERNATIONAL METEOROLOGICAL COMMITTEE.

THE Committee met at St. Petersburg from September 2–7; the meeting was a small one, only about half of the members being present. It was opened by the Grand Duke Constantine, who delivered an interesting address, in which he specially referred to the service rendered to meteorological science by A. Kupffer, the founder of the Russian climatological organisation. The reports of the various sub-committees were read and considered, and the following are the principal resolutions arrived at:—On the report, by Prof. Rücker, upon terrestrial magnetism and atmospheric electricity, it was decided that the sub-committee should be maintained as a distinct organisation, under the direct supervision of the International Committee. In reply to a question by

[1] I regret that absence from my library makes it impossible for me to give the exact references to his papers and to Prof. Bailey's.

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General Rykatcheff, director of the Russian Meteorological Service, the Committee recommended that meteorological institutions should take part in observations of earthquake phenomena. With regard to Antarctic exploration, the Committee expressed the opinion that it is highly desirable (1) that the results of these explorations should be completed by data from the observatories already existing in the southern hemisphere, and by those made on board vessels traversing the southern oceans; (2) that new meteorological stations should be established in the southern part of the Antarctic regions, and especially that magnetic observations should be organised; (3) that magnetic determinations over the whole globe should be made simultaneously with those made during the expeditions. With reference to the valuable researches of Dr. Hildebrandsson relating to the great centres of action of the atmosphere (which have already been noticed in our columns), the following resolution was adopted:—"The Committee appreciates the high interest attached to observations made in a regular manner in different regions which seem to possess special importance as to our knowledge of the general laws of the motions of the atmosphere." Profs. v. Bezold and Mascart drew attention to the proposed establishment of a very complete meteorological and magnetical observatory at the Azores by the Prince of Monaco, assisted by Captain Chaves, of the Portuguese navy, who has entirely devoted himself to the realisation of this undertaking. On the question of the calculation of daily meteorological means, it was decided that if the exact formula

$$\frac{0+24}{2}+1 \ldots +23 : 24$$

is not adopted the midnight observation should be taken into account at the end of the day, as is already done at most stations, according to the formula

$$1+2+3 \ldots +24 : 24.$$

On the proposal of Dr. Hann to publish tables of diurnal range of temperature for each country in a special form, the Committee, while appreciating the interest and importance of the proposal, expressed its opinion that, as the question possessed a general bearing, it should be examined by a sub-committee, which should determine the form of table to be adopted by all countries. On the subject of the importance of actinometric observations, also brought forward by Dr. Hann, the Committee expressed the hope that the sub-committee for terrestrial and solar radiation would present a report upon that subject at the next International Congress. M. Violle submitted a note on the various methods employed for actinometric measurements. On the proposal of Dr. Pernter as to the desirability of the restriction of observations with the wet-bulb thermometer and the multiplication of observations with the hair hygrometer, the Committee came to no decision, pending the presentation of a full report upon the question. Dr. Paulsen, director of the Danish Meteorological Institute, drew attention to the importance for weather prediction of the laying of a cable between Iceland and Europe, towards which the Danish Government and the Great Northern Telegraph Company were prepared to make a considerable annual subvention. The Committee fully recognised the importance of the proposal, and expressed its hope of the ultimate success of the project. Profs. Neumayer and v. Bezold made a proposal relative to the publication of an international periodical weather report (recently referred to in our columns), which should contain ten-day means from about a hundred stations. The Committee was of opinion that it would be desirable that a definite plan of the proposed publication should be prepared for examination by each meteorological service. A sub-committee, composed of MM. Pernter (president), Billwiller, Neumayer, Rykatcheff, Mohn and Tacchini, was nominated for the purpose of considering the extension and improvement of international telegraphy for weather prediction. Finally, it was decided that the International Meteorological Committee and the various sub-committees should meet in Paris in the year 1900, immediately after the Meteorological Congress which will take place on the occasion of the Exhibition. This Congress will probably be held during the first half of September. We are indebted to M. Lancaster's summary in *Ciel et Terre* for the notice of this meeting.

THE COMING SHOWER OF LEONIDS.

DURING the past few years English observers, in their efforts to witness returns of the Leonid meteors, have met with little but disappointment. Either the firmament has been overcast at the important time, or the display has been very weak. The rarity and singular attractiveness of a really fine meteoritic exhibition are such that the immediate prospect of viewing an event of the kind has aroused great interest in the whole subject of shooting stars. But we have been a little premature in our anticipations in recent years, and looking for the appearance of the meteors before the vanguard of the denser portion of the stream had begun to cross the earth's path. There can, however, be no doubt as to the character of the ensuing display. The earth will be sure to encounter one of the richest regions of the orbit at the middle of November, but whether or not this collision will occur at an hour perfectly suitable for its observation remains to be seen. It must be admitted that the exact time of the *rencontre* cannot be definitely stated. The materials upon which computations have to be based are not sufficiently numerous and consistent to enable exact deductions to be drawn from them. Moreover, there is evidence to show that the system of meteors is constantly undergoing changes. The particles are spread out, and are still spreading out, over a very considerable section of the orbit, and are subject to perturbations by the larger planets. Different sections of the stream are affected unequally, so that the whole system, both as regards its conformation and distribution, suffers from such irregular disturbances, that we must be prepared for the visible signs of developments of an unexpected character. In the present state of our knowledge it is impossible for us to allow for all the various circumstances and conditions which control the visible aspect of the shower, from year to year, and modify its orbital elements.

Calculations which have been made independently by several authorities show that the influence of Jupiter and Saturn, since the last return of the shower in 1866, has been exerted in increasing the node, so that the phenomenon may be expected a day late in the present year It will probably occur just before sunrise on November 16. Drs. Stoney and Downing, in a paper published in the *Proceedings* of the Royal Society, vol. lxiv. p. 406, state that a noteworthy outcome of their investigations is that the meteor-group which gave rise to the display in 1866, made a near approach to Saturn in 1870, and to Jupiter in 1898. On the latter occasion the meteor-cloud was distant from Jupiter by an interval of space less than that separating the earth and the sun. Berberich (*Ast. Nach.*, 3526) has also discussed the orbit-perturbations of the Leonid stream, and concludes that the meteors will appear about a day later than they would have done under normal conditions. If there had been the average annual displacement of the node (equal 102″·6) the recurrence of the shower might have been anticipated on November 15 at about 1 a.m., but the perturbations seem to have increased the longitude of the node to the extent of 14°; so that the greatest intensity of the display must be awaited on the morning of November 16, in the twilight preceding sunrise.

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