While the present monograph follows, almost inevitably, the lines of Eichhoff's work, to which it constantly refers, it is, so far as its extent goes, a great advance on that book; for the author has spared no pains in achieving an exhaustive treatment of the subject, both by his own observations and by collation of what has been written by others.

Mr. Lövendal is artist as well as author, and is already well known as the illustrator of Schiödte's "De Metamorphosi Eleutheratorum." He has executed for the present work five plates, by the now almost disused method of line-engraving, which cannot be surpassed for beauty of style or accuracy of detail. The text is furnished with some eighty woodcuts, showing the burrows of these insects in bark and wood, and the whole book is printed in the most sumptuous manner.

Such a book, written entirely in Danish and on about fifty species of a single Coleopterous family, is for the very few. But it is worthy of more general examination as a monograph which in method, fulness and finish, leaves nothing to be desired. The publication of a work of this calibre would be, we fear, at present entirely beyond the resources of British entomology. W. F. H. B.

Through Arctic Lapland. By Cutcliffe Hyne. Pp. xi + 284. (London: Adam and Charles Black, 1898.)

We have in this volume a very interesting account of the author's journey from Vardo Island, lying in the north-east corner of Norway, to Haparanda, in Sweden, situated at the head of the Gulf of Bothnia. Mr. Cutcliffe Hyne was accompanied by his friend Mr. Cecil Hayter, to whom he is indebted for the illustrations, which form an attractive feature of the book.

On arriving at Vardo, inquiries were made as to the best means of getting across the country, and it was found that the journey was an unheard-of undertaking in the summer months, the country being chiefly swamps, lakes and rivers. In winter it would have been comparatively easy, for the ground being hard, and the water frozen, there were recognised routes, and stations where relays of deer could be obtained.

However, the travellers were not to be daunted by the apparently hopeless look-out presented to them, and they persevered, with the result that they accomplished what they set out to do.

The journey is of particular interest, for this special route had never been taken before. The incidents described are numerous and exciting, and the life and customs of the nomad Lapp are well depicted. The chief means of subsistence of this Lapp is in the possession of large herds of deer; for not only does their milk, which is thick and syrupy, form part of his daily food, but he breeds them, and rears them for selling and killing. With regard to sledge-deer, it takes three years of severe training before they can safely be driven.

All through the book we are struck with the descriptions of the beauty of the vegetation, and also with the lack of wild life. The troublesome swarms of mosquitoes and flies form a special drawback for travelling in that part. Nothing of great scientific importance is disclosed, but much which will help those who wish to visit Arctic Lapland.

The New Gulliver. By Wendell Phillips Garrison. Pp. 51. (Jamaica, Queensborough, New York: The Marion Press, 1898.)

THIS is an amusing fantasy in which a shipwrecked graduate of Yale College is supposed to be cast upon an island, and to hold dialogues with a dapple-grey horse, which refused to acknowledge Prof. Marsh's *Orohippus* or *Eokhippus* as its ancestors, and explained that there could be no moral sense without language; from which conclusion certain theological distinctions are drawn.

NO. 1523, VOL. 59]

LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. No notice is taken of anonymous communications.]

Converse of the Zeeman Effect.

I HAVE not seen it noticed that a converse action to the Zeeman effect should exist. A radiating atom in a magnetic field gives out circularly polarised light. A circularly polarised beam of light should cause a directed rotation of the electrons, so that the absorbing gas should be magnetised and exhibit magnetic force. If all the molecules in a c.c. of gas were caused to rotate their electrons in the same direction, it would possess quite a considerable magnetic moment. It is very improbable that the action of a circularly polarised beam of light would control the motions to such an extent as that; but it is quite possible that, if a circularly polarised beam of sunlight were passed through a strongly absorbing gas, it would magnetise it to an observable extent. The same effect would probably exist in any medium in which absorption was principally due to syntonism and not mostly due to viscous actions. Hence I would expect some effect with absorbing substances like fuchsine. It is doubtful whether lampblack, iron, or other metals have a sufficiently syntonous absorption to exhibit the effect.

My assistant Mr. Thrift is engaged in trying the experiment, but in the meanwhile I thought it might be of general interest to point out that such an effect should exist.

GEO. FRAS. FITZGERALD.

Trinity College, Dublin, December 29, 1898.

Flow of Water.

I TOOK occasion, in the course of a paper on "The Character of Fluid Motion," read on December 14 before the Liverpool Engineering Society, to give the following reply, which I promised to Prof. Osborne Reynolds's letter, which appeared in your issue of September 15 last.

"Prof. Reynolds's comments may be placed under three headings:

"(1) An expression of disagreement with what he takes to be my views on the subject of the light border.

"(2) An explanation of the light border or bands adjacent to the solid boundary.

"(3) The expression of the belief that the water charged with air bubbles does not in any way represent the motion of the fluid itself.

"In the first place the criticism of Prof. Reynolds is based, apparently, upon a misconception of the statement in my first paper (*Trans. Inst. Naval Architects*, vol. xxxix. p. 151).

"In his letter he states as my views 'that with water in sinuous motion and air bubbles as indices of the manner of motion, the light bands adjacent to the surfaces of the solids, which show absence of bubbles adjacent to the solid, prove that the once air-charged water has not been carried by sinuous motion sufficiently near to the solid surface to displace the initially adjacent water; and hence prove that the sinuous motion does not extend up to the solid surface.' What I really wrote was, however, very different to this, viz. that the result of my observations had led me to the conclusion that the 'clear border line represents a condition of parallel flow of layers of water past the skin of the obstacle, or the sides of a pipe, in which a state of shearing exists, while outside this, in the darker portion, the water is in a state of sinuous motion, which corresponds to the state of the higher velocity of water.'

"These two statements are really very different because it was not my own belief that the once air-charged water never reached the surface, but that when it did so, the air has been removed from it for reasons which I gave (*Trans. Inst. of Naval Architects*, vol. xl. p. 45), where I stated that although I had 'purposely avoided introducing unnecessary speculations in trying to account for the observed facts, it does, however, seem that the clear film may be partly accounted for as the result of inertia, which allows the heavier water to reach the side of the submerged body, and partly from the fact that the velocity being less there, the pressure might be greater, and so the air being excluded from the portion where the water is moving with