

LETTERS TO THE EDITOR.

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"Fascination" of Birds by a Snake.

I HAVE just received the following record of an observation made on September 19 by Capt. G. D. H. Carpenter, at Itigi, about 150 miles east of Tabora, on the Central Railway of late German East Africa. Capt. Carpenter's account recalls the behaviour of small birds to a cuckoo or an owl, and suggests that they were "mobbing" an enemy rather than fascinated by it. The observation may supply the clue to the interpretation of all cases of supposed "fascination" by snakes. EDWARD B. POULTON.

Oxford, November 24.

"Yesterday afternoon I witnessed what I have always found difficult to believe, namely, the strange 'fascination' of birds by a snake. I came upon a party of very pretty little finches hopping about among thick dead twigs of a fallen branch on the ground. I came on them quite suddenly from round another bush, and stopped dead when I saw them to watch them. Though I was within a couple of yards they did not fly away, but continued to hop about, all gradually coming closer, and uttering faint chirps. I thought I had never seen such tame birds, and admired their beauty. While looking at the birds I quite missed an Elapine snake, which suddenly attracted my attention by striking at a hen finch just in front of me! It fluttered back a foot or two, and the snake got a mouthful of feathers among its teeth, which seemed to incommode it, for it went down among the thin grass at the foot of the clump of twigs, where I could still see it. The birds none of them made any attempt to get away, but actually several of them, including the one already struck at, hopped further down to get another look at the snake! The latter bird did show some signs of agitation, as every now and then she spread out her tail fanwise and kept on chirping, but still went nearer. However, after a bit the birds flew away one by one, without any excitement, and I crept up and found the snake had gone. I wished I had seen the snake before it struck, to see which way its head was pointing. Of course, I do not believe in the mesmeric theory, but it was *not* a question of a snake pursuing a victim which was too frightened to run away."

Pyrometers and Pyrometry.

I DESIRE to compliment you on the summary in NATURE of November 15 of the recent meeting of the Faraday Society on pyrometers and pyrometry; it is quite the best of the various summaries and accounts published in the technical Press.

With reference to the question of automatic control, I think it is only fair to the English pyrometer manufacturers to say that methods of the kind described by Mr. R. P. Brown, of Philadelphia, have been employed previously, using instruments of English manufacture. In my judgment the present position is rather that the instrument manufacturer is waiting on the furnace user. Heating processes, in the majority of cases, are not so far developed towards standardisation as to make any very extensive call for this automatic control. In the majority of cases an ordinary recording pyrometer, producing its record under the observation of the man controlling the furnace, achieves all that industries at

present require; the shape and slope of the record line give the furnaceman a power of anticipating the temperature change which will take place in his furnace and of altering the firing accordingly.

CHAS. E. FOSTER.

Letchworth, Herts, November 19.

IRON-ORE DEPOSITS IN RELATION TO THE WAR.

THE *Fortnightly Review* for November contains an important article headed "Coal and Iron in War: The Importance of Alsace and Lorraine," which sets forth very clearly an aspect of the European war that has received far too little attention in this country, though its importance has been for some time fully recognised on the Continent. The article consists essentially of a statement as to one of the main causes of the origin of the war, and of a deduction showing the proper nature of the penalty that should be exacted from the originators. The contributory cause discussed is the intense desire of the German plutocratic group, the great German ironmasters, of which such firms as Krupp and the Deutscher Kaiser are representative, to obtain a monopoly of that vast deposit of iron ore which covers so large an area of Central Europe, and is known as "Minette." The writer in the *Fortnightly Review* rests his presentation of the case very largely upon the strong evidence contained in a memorandum submitted on May 20, 1915, by the six leading industrial and agricultural societies of Germany to the Chancellor, in which their requirements and demands in regard to the terms of peace are set forth. The most important of these in the present connection is the demand that Germany should retain possession of the French coast region as far as the Somme, because "by the acquisition of the line of the Meuse and of the French coast the iron-producing district of Briey, as well as the coal-fields of the north and of the Pas de Calais, would be acquired."

The *Fortnightly Review* has done valuable service to the nation in directing attention to this memorandum; if any evidence at all were needed to show that Germany was not forced into this war for self-defence, as Germans are so fond of alleging, but went into it deliberately for the sake of rapine and plunder, this document supplies it to the full, seeing that it specifies in detail the booty of which Germany was deliberately preparing to rob her neighbour, an act of robbery which would certainly have been consummated but for British intervention. The facts as to the importance of the Minette ores are well enough shown in the article referred to, but a full knowledge of all the circumstances makes the case even stronger. In the year 1911 a full account of the Minette iron-ore deposits appeared in the well-known German paper *Stahl und Eisen*, the figures given in which are most illuminating. It is stated that the area within which these ores are workable covers 70,000 to 80,000 hectares, of which French Lorraine possesses 40,000 to 50,000, German Lorraine 27,000 to 28,000, Luxemburg 2500, and Belgium only a

few hundred hectares, and estimates of the quantities of ore available are given as follows:—

French Lorraine	...	...	3100	million tons
German Lorraine	...	...	1841	" "
Luxemburg	...	...	250	" "
Total	...	...	5191	million tons

It may be added that the Briey basin alone, by far the most important of the French ore-fields, is estimated here to contain 2000 million tons, or more than the whole of the German deposits, and it is this particular basin that, as shown above, is the main objective of German rapacity.

There is, however, more in the question than appears even from the above figures of quantity of Minette; it is also a question of quality. The German writer of the article referred to admits that the Briey ore is at least 4 per cent. richer in iron than the Minette on the German side of the frontier, whilst other authorities put the difference at 6 per cent., averaging the German ore at 29 per cent. and the Briey ore at 35 per cent. of metallic iron. No ironmaster will need to be told that the advantage in favour of the French ore is of immense importance, and the German writer shows very clearly how great is the fear of French competition. "From the point of view of the domestic Minette-mining industry," he writes, "it would be a matter for sincere regret if in the German customs area [*i.e.* Germany proper and Luxemburg] the import of French ore were to increase more and more, thus displacing Minette of German origin."

The fear of French competition grew year by year, and in 1913 the same paper, *Stahl und Eisen*, pointed out that owing to the increasing production of the richer French ore, large portions of the Minette of German Lorraine would necessarily have to remain unworked. The anxiety of the plutocratic German ironmasters was becoming evident; they were gradually, by their methods of "peaceful penetration," getting a considerable financial control over the Briey ore-field, but these methods were too slow and too costly for their measureless greed, and they did not hesitate to sacrifice millions of human lives in order to effect their policy of rapine. So recently as October last a Pan-Germanist Leipzig paper was maintaining that Germany must not only keep Alsace-Lorraine, but must also annex the ore-fields of Longwy. It says:—

Before the war France produced annually twenty-two million tons of ore, of which nine-tenths came from the Longwy basin, and Germany extracted annually from Lorraine twenty-one million tons, or, say, three-fourths of its entire output. If therefore Germany keeps the mines of France and of Lorraine, she would have available fifty million tons of iron ore yearly. She would then possess the monopoly of iron ore in Europe, which would furthermore assure continuous work and prosperity to the German working classes.

All this mass of evidence drives home the contention of the writer in the *Fortnightly Review*, and shows clearly how important the German ironmasters consider the ores of the Briey basin to be to them. The present war would have been

impossible had not two British inventors, Messrs. Gilchrist and Thomas, shown how to convert phosphoric iron ores into good steel, incidentally also producing at the same time a slag of a high manurial value; having applied this process, which, by the way, was not discovered until after 1870, to the Minette in the portion of Lorraine already annexed, German ironmasters now want to grasp the rest of this valuable iron-ore deposit, the importance of which has been rendered evident through the basic steel process.

H. LOUIS.

SCIENCE, INDUSTRY, AND COMMERCE IN INDIA.

LITTLE more than ten years have come and gone since the suggestion was first made that lack of co-ordination, in the scientific departments of India, had often resulted in needless duplication, in useless departmental jealousies, and in the divorce of what may be called economic research from commerce and industry. Under Lord Curzon's enlightened guidance this *impasse* led to the formation of the Board of Scientific Advice for India. Since 1902 each year has witnessed important advances of a gratifying nature, so that it may be said that the annual reports of the Board, of which that for the year 1915-16 is before us, epitomise certain aspects of the scientific work accomplished in India.

The Government of India had previously tried the experiment of subsidising societies and institutions (both in India and England) with the view of delegating to them its responsibility in the matter of science research. This had the effect, not of encouraging the growth of science, but of degrading local scientific men into specimen collectors. The linking together, therefore, within India itself, of the chief scientific departments gave the strength of unity and the courage of public recognition. But has this very necessary reform been carried to its rational conclusion? The chief officers of the following departments constitute the Board: the Secretary of the Department of Revenue and Agriculture (*ex-officio* President of the Board), the Directors of Observatories, of Zoology, and of Surveys, the Principal of the Veterinary College, the Inspector-General of Forests, the Agricultural Adviser, the Directors of the Geological and Medical Services, the Secretary in the Public Works, and the Directors of the Indian Institute of Science and of the Botanical Survey.

But why is education not more directly and fully represented? Surely the utilisation of the chemical and physical laboratories of the universities, and of the services of the professors in charge of these, are obvious directions of economy and utility. So, again, one is tempted to ask, Why has statistics been overlooked? Still again, Why has the Director-General of Commercial Intelligence no seat on the Board? To the non-official mind the Department of Commerce and Industry should very possibly have a co-equal share with the Department of Revenue and Agriculture (and certainly a