

made the subject of that article his particular pursuit, relaxation, or study; a trainer writing on training, a breeder on breeding, and so on. Under Mr. Watson's able editing, all these diverse factors have been woven into one harmonious and continuous whole.

To the naturalist the most interesting chapter is perhaps the one on breeders and breeding, in which the writer strongly advocates the advisability of plenty of fresh air and exercise for young horses of all kinds, as well as change of pasture. Contrary to the opinion of some of his fellows, the author firmly believes in heredity, and therefore advises the selection for breeding purposes of mares which have made a name on the turf.

As regards shape, he prefers long, low, and broad animals, but it is somewhat curious to notice that in the chapter on trainers and training the writer considers this an old-fashioned view, pointing out that "St. Simon," who was anything but a long and low horse, has done much to modify opinion on this point. It is satisfactory to learn that, according to the last mentioned writer, there is much less viciousness prevalent among racehorses than was formerly the case, this being attributed to gentler and more humane methods of training and treatment.

One other point and we must take leave of this brightly written and well illustrated volume. The point in question relates to the proper manner of drawing a racehorse at full speed. As the frontispiece of Mr. Watson's work we have a picture of a race in which the horses are represented as seen in a photograph, one of them having all four legs off the ground, and looking as though it were about to fall on its nose. In contrast to this, we have, facing p. 103, a reproduction of Herring's well known picture of "Flying Dutchman," in which the horse is represented as galloping *ventre à terre*, with the fore and hind limbs stretched out to their full extent. Obviously it is an inconsistency to have these two types of representing a galloping horse in the same work, as one must obviously be wrong. From the fact that when we draw the wheels of a carriage in rapid motion we represent the spokes as forming a continuous blur, and not as seen in a photograph, our own opinion inclines to the advisability of drawing racehorses somewhat after the old conventional manner, and not as they appear in photographs, when the postures are quite unlike the appearances presented to our eyes.

R. L.

*Geologie von Deutschland und den angrenzenden Gebieten.* Zweiter Teil. Lieferung i. By Dr. Richard Lepsius. Pp. 246. (Leipzig: Engelmann; London: Williams and Norgate, 1903.) Price 8s. net.

THIS part of the text elucidating Dr. Lepsius's well known geological map of Germany maintains a high level, and secures the acceptance of the book as a permanent work of reference. It is not so redolent of the country itself as is the great work on Austria-Hungary recently noticed in these columns (May 19, p. 49), but it embodies the results of extensive researches, and the individuality of the author is agreeably seen when he marshals and reviews the conclusions of those who have gone before him. The present section is of especial interest to students of metamorphic areas. The amphibolites and marbles of the "kristalline Grundlage im Erzgebirge" will recall many occurrences in our Scotch and Irish highlands. The description of the saturation of a schistose area by invading granite (p. 104), and the consequent origin of the gneissic *massif* of the Erzgebirge, will appeal to those who have sought to show that our own "Archæan" gneisses may often be of composite

origin, and in places of post-Silurian age. The famous area of granulite in Saxony is dealt with from the point of view so long maintained, in other regions, by French geologists, to whom personal recognition is accorded (p. 172). Dynamic metamorphism is relegated to a relatively unimportant place, and the granulite is treated as a part of the Carboniferous granitic intrusion, making its way, under pressure of superincumbent layers, into a great dome of schists. The pyroxene-granulites and other variations arise from the absorption of diabases, quartzites, and so forth, into the invading mass. The observations of Callaway in Galway and Barrois in Brittany thus receive confirmation from the stronghold of the dynamometamorphic school.

The present part also includes a description of the sandstone area of the Elbe, with lists of Cretaceous fossils, and of the post-Cretaceous overthrust (p. 182) of granite and syenite on the right bank of the river at Hohnstein. G. A. J. C.

*Traité Élémentaire des Enroulements des Dynamos à Courant Continu.* By F. Loppé. Pp. vi+78. (Paris: Gauthier-Villars, 1904.) Price 2 f. 75 c.

*Étude sur les Résonances.* By G. Chevrier. Pp. 76 (Paris: L'Éclairage Électrique, 1904.)

M. LOPPÉ'S little book is an elementary treatise on dynamo windings which we have no doubt will prove useful to many students of this subject. The treatment is quite simple, and the mathematics required are of the most elementary nature. The book is divided into two chapters, the first dealing with bipolar and the second with multipolar machines; only ring and drum windings are discussed. There are a number of good diagrams and winding tables.

The subject of resonance in electric cables carrying alternating currents has already become of considerable importance in electrical engineering, and is likely to come still more to the front as the development of power distribution at high voltages proceeds. M. Chevrier's book is a welcome essay on the subject, as the author has endeavoured to coordinate the existing knowledge and to present the elements of both the theoretical and practical aspects in a clear manner. After a general discussion of oscillating motion, electric circuits are considered in detail, and the various cases of resonance or possible resonance in distributing mains are treated at some length.

*Lehrbuch der experimental Physik in elementarer Darstellung.* By Dr. Arnold Berliner. Pp. xvi+857; with plates and illustrations. (Jena: Gustav Fischer, 1903.) Price 14 marks.

THIS is an elementary but not a rudimentary treatise. The aim of the author has evidently been to present as completely as possible the fundamental principles and facts which form the groundwork of physics (including mechanics). It can be confidently recommended to any second or third year student of experimental physics who is familiar with German. The mathematics in it is of a very elementary character; the author relies, in fact, not on mathematical demonstrations, but on general descriptions aided by diagrams. Many of these diagrams are very well conceived, and materially assist the description in the text. The author is fond of the use of analogies, and we think him very successful in employing them. We were rather surprised to find the Boer war figuring as one of these analogies.

The book will be found most useful to those students whose mathematical knowledge is only slight. The medical student has, in fact, been kept in view in its elaboration.