

papers of various kinds. The author's language is very inexact if compared with the language of Thomson and Tait's "Natural Philosophy," or Dr. Lodge's text-book. It reads as if a shorthand-writer had taken notes of lectures, and the lecturer had published them after hasty correction. This inexactness is visible in almost every definition in the book. We read of velocities acting and accelerations working. New magnitudes are introduced; thus, "the intensity of a force is like the temperature of a body. It is measured by the velocity communicated, apart altogether from the mass to which it is communicated." "But the quantity of a force is like the amount of heat in a body. Force-quantity is measured by the product of the velocity communicated and the mass to which it is communicated" (p. 103). In defining, if he can be said to define, "impressed force," the author uses expressions such as "so that when we speak or read of an accelerating force, f or g , or $9\cdot8$ or $32\cdot2$, or a per second per second."

This book would certainly not be recommended by us to any student who is desirous of obtaining a knowledge of mechanics; but, for all we know, it may very well serve the purpose for which its author has designed it. It is a book written for candidates in certain examinations by a successful candidate. The author has introduced side lines to catch a student's eye, and we think this a very clever contrivance. Thus there is the side line "Pressure" (p. 2), and the student is directed to get off by memory: "When a body is prevented from falling towards the earth by the hand or by a table, *e.g.*, the body exerts a certain pressure upon the hand or the table." It is interesting to know from such an authority as Dr. Aveling that this is the sort of definition which satisfies an examiner, and it seems to us that a study of this book by examiners would lead to very useful results.

Solutions of the Examples in an Elementary Treatise on Conic Sections. By Charles Smith, M.A. (London: Macmillan, 1888.)

MR. SMITH has been well advised in drawing up this collection of elegant solutions to the examples in his "Conics." His treatise is just now in the full tide of success, and seems likely to maintain its position for some time yet before a better one drives it into the background. This, then, is just the time when such aid as is here furnished is most acceptable to teachers, "many of whom," as we have more than once stated in these columns, and as the author here testifies, "can ill afford time to write out detailed solutions of the questions which prove too difficult for their pupils." We have compared many of the solutions here given with our own (in manuscript), and find that new light is thrown on some by Mr. Smith's thorough command of the latest methods. We have detected here and there a trifling error, which may perhaps cause momentary trouble to a self-taught student, but there is sufficient detail given to enable the reader, on careful perusal, to make the required correction. In some cases more than one solution is given: this is a good feature. The possessor of the text-book and of the "Solutions" occupies a strong position, and should be able to attain considerable skill in this particular branch of mathematics.

The Beginner's Guide to Photography. By a Fellow of the Chemical Society. (London: Perken, Son, and Rayment, 1888.)

THIS is a second edition, revised and enlarged, of an elementary guide for those commencing the art of photography. In it will be found practical hints as regards the choice of apparatus, and a good explanation of the whole process of photographic manipulation, written in a manner which for beginners leaves nothing to be desired.

An article on "Exposure" has been added by Mr. H.

S. Platts, including tables and directions, and the latter, if carried out by the amateur, ought to give him good results.

There are, also, chapters on the production of lantern-slides, enlarging, and photomicrography, and the book concludes with a collection of the illustrations referred to in it.

LETTERS TO THE EDITOR.

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Prophetic Germs.

IN his letter of October 8, the Duke of Argyll says that he sees great value in my statement (which he improperly terms an "admission"), that natural selection cannot act upon any structure which is not already developed up to the stage of actual use. He says, "This is really all I want for my previous argument, because all organs whatever do actually pass through rudimentary stages in which actual use is impossible." Here we have the Duke's case in a nutshell. It is easily dealt with. Firstly, what the Duke terms an "admission" on my part is an essential and explicitly stated element of Mr. Darwin's own exposition of his theory. Secondly, it is necessary for the Duke to demonstrate not that "all organs whatever," but that *some* organs "do actually pass through rudimentary stages in which actual use is impossible."

The stages here alluded to are—if I understand correctly—ancestral stages, not stages in the embryological development of the individual.

I feel bound to state that I do not know of any facts in the history of either animals or plants which lead me (or, I may say, which have led any important number of the vast army of writers and observers on these subjects) to the conclusion that any existing active organ has passed through rudimentary stages in which actual use is impossible, if we set aside such cases as may be explained by correlation of growth or by the persistence of vestiges of formerly useful structures.

If the Duke of Argyll can show that any one organ has or "must have" passed through such useless stages (not explicable as due to correlation of growth nor as inherited vestiges), he ought at once to do so. Mr. Darwin, in his severe testing of his own theory, tried to find such cases, and did not find them. What are they? My own opinion is that they do not exist, and that the Duke's case collapses.

E. RAY LANKESTER.

A New Australian Mammal.

A FEW days ago, through the kindness of Mr. A. Molineux, of Adelaide, a small mole-like animal, which appears to be new to science, was forwarded to the South Australian Museum. It was found on the Idracowie cattle-station, at a distance, I understand, of about 100 miles from the Charlotte Waters Telegraph Station, on the overland line from Adelaide to Port Darwin; but the exact circumstances of its capture are not yet to hand. The collector, however, reports that it must be of rare occurrence, as, on questioning the aboriginals of the locality, there was only one old woman who said she had seen it before, and that upon a single occasion.

It is evidently an underground burrowing animal resembling somewhat the Cape mole (*Chrysochloris*) in its general external appearance, but differing in many respects.

The total length is 13 cm., inclusive of the tail, which is 2 cm. long. The head, relatively shorter than *Chrysochloris*, has a rounded muzzle, the dorsal surface of which is covered by a horny shield. Nostrils transversely slit-like. No eyes visible, the skin passing uninterruptedly over the ocular region; but on reflecting the skin on one side of the face a small circular pigment spot is visible in the position of the eye. No apparent bony orbit. Tongue fleshy, broad at the base, and tapering to a blunt point. No external ears; but the ear-openings distinct, 1 mm. wide, and covered over with fur.

The fore-limbs are short, resembling somewhat those of a mole; but the manus is folded, so that the large nails of the fourth and fifth digits only are visible in the natural position of