book before us takes an entirely new departure. The idea of representing the various coloured reactions by tinted imitations is, so far as we know, quite new. Apart from this, the usual well-worn paths are followed. The tables are of the simplest character, and are only sufficient for the detection of common bases in salts or oxides, no attempt being made to separate the members of the various groups. The second part is devoted to reactions for the detection of a few acids and organic substances.

The book is apparently primarily intended for the use of students preparing for the preliminary examination of the Conjoint Board of the Royal College of Physicians and Surgeons, but it will no doubt have a much wider field of usefulness if it survives the test of experience. The new method of representation seems excellently adapted for young students, and certainly no harm can be done by giving it a fair trial.

The reactions illustrated include precipitates, charcoal reactions, borax beads, and flame colorations, most of which are fairly well represented.

The Story of a Tinder Box. By Charles M. Tidy, M.B.M.S., F.C.S., &c. (London: Society for Promoting Christian Knowledge, 1889.)

POPULAR lecturers have discovered for some time that the history of the methods that have been used for obtaining a light is an excellent subject wherewith to please the public mind, and this book contains the reports of three such lectures delivered to a juvenile auditory last Christmas. An attempt has also been made to describe the experimental portion of the lectures, and the author has not committed the common error of giving a multiplicity of pretty but irrelevant experiments conveying a paucity of information. In fact, in some parts the reverse seems the case, for we must confess our inability to discover why a consideration of the allotropic modifications of carbon should necessitate a detailed description of the manufacture of black lead pencils. This digression, however, does not detract from the interest and general merit of the work, which certainly contains the explanation in simple language of some elementary physical and chemical phenomena.

Magnetism and Electricity. Part I. Magnetism. By Andrew Jamieson, M.I.C.E. (London: Griffin and Co., 1889.)

ALTHOUGH elementary text-books of physics continue to increase in number, there is still room for one of such general excellence as Prof. Jamieson's elementary manual. The book is specially arranged for the use of first year Science and Art Department and other electrical students. Numerous questions and specimen answers are distributed throughout the book, and though this may be rather suggestive of cram, there is nothing in the text to justify such a suggestion. It is unnecessary to go into details, but it may be stated that the arrangement of subjects is as good as it well can be, and on the whole the descriptions are very clear. The numerous diagrams are also excellent, those of the mariner's compass being especially good; indeed, the whole chapter on terrestrial magnetism is the best elementary account of the subject which has come under our notice.

The subject is throughout considered as an essentially practical one, and very clear instructions are given for the making of magnets, and compass and dipping needles.

If the succeeding parts of the book confirm the good opinion created by the first, teachers of the subject are to be congratulated on having such a thoroughly trustworthy text-book at their disposal.

Time and Tide: A Romance of the Moon. By Sir Robert S. Ball, LL.D., F.R.S. (London: Society for Promoting Christian Knowledge, 1889.)

THE ability of the author of this work to give a lucid exposition of an abstruse subject is a matter of common

knowledge; and hence the fact that the book contains two of his lectures delivered at the London Institution last November is in itself sufficient commendation. However, be this as it may, we have no hesitation in saying there could hardly be a clearer explanation of Prof. George Darwin's theory of tidal evolution than that contained in the work before us. The hypothesis being accepted, every feature of the past and future condition of our satellite is described in a most comprehensive manner. It is first shown how, when the earth was rotating on its axis with an enormous velocity, the tidal action set up by the sun caused a portion to become detached and form our satellite. The employment of the term "conservation of spin" facilitates considerably the demonstration of the fact that as by tidal action the spin of the earth decreases—as our day lengthens—so must the dimensions of the moon's orbit be increased, and the length of the month therefore become proportionally greater. The application of Prof. Darwin's theory to other members of our system is also inquired into; and although the author does not attempt to go back to the first stage in the evolution of celestial species, he shows that tidal evolution is an extension of the hypothesis that does so. Indeed, the book is replete with information, and by the general scientific reader will be found exceedingly interesting.

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.]

Specific Inductive Capacity.

PERHAPS a better mode of performing the experiment quoted by Mr. Rudge (p. 10) is to have two insulated parallel metal plates, one connected with an electroscope, the other with a slightly-charged Leyden-jar. On now interposing a thick slab of paraffin or ebonite (recently passed through a flame) between the plates, a very decided increase of divergence will be perceived. Unless, indeed, the electroscope should happen to have overflowed to earth during the charging of the jar, in which case it will be oppositely charged and a decreased divergence may be caused. To interpose the slab is, in fact, virtually to diminish the distance between the plates, and its effect is therefore the same as that of pushing the plates closer together.

The advantage of the Leyden-jar is that it keeps the potential practically constant. If an isolated plate or sphere is used as the charged body the circumstances are not so simple; for the insertion of the slab reduces the potential and slightly increases the charge on the near face of the plate, so that whether the divergence of the leaves is increased or diminished depends on several unimportant considerations, of which the size of the slab may be one. A slab of area comparable to that of the plates between which it is put would in this case be the most suitable; and in any case it should be supported by a long insulator, so that the operator's arm, as it approaches, shall not complicate and mask the effect.

OLIVER J. LODGE.

University College, Liverpool, November 9.

"La Pietra Papale."

ABOVE Stresa, on the western bank of Lago Maggiore, there is an enormous granite boulder, which deserves the attention of geologists. It lies on the left slope of an old moraine, near the little village of Gignese, and not far from the Hotel Alpino, at an elevation of about 2500 feet above the sea-level. It is roughly oblong in shape, and measures some 75 feet in length, and perhaps half as much in breadth and thickness. The projected mountain railway from Stresa to the summit of Monte Motterone will pass close to the spot where it lies, and the masons are already engaged in converting the smaller boulders into building-stones. It is to be hoped, however, that *la pietra papale*, as this splendid example of the carrying powers of ice is

called by the villagers, will not suffer the like fate. The Italian Alpine Club, will, we may trust, interest themselves in this matter. P. L. SCLATER.

Hotel du Parc, Lugano, October 21.

Who discovered the Teeth in Ornithorhynchus?

AS Dr. Hart Merriam's letter on the above subject in your issue of the 7th inst. (p. 11) will be read by many who have not access to Sir Everard Home's "Lectures on Comparative Anatomy," allow me to point out that the description and figures in that work referred to by Dr. Merriam have no bearing whatever upon the very interesting discoveries recently made. They represent, not the real teeth of the young animal discovered by Mr. Poulton, and fully described by Mr. Oldfield Thomas, but the well-known horny plates which functionally take their place in the adult, and which are called "grinding teeth" by Sir Everard only in a very general sense. W. H. FLOWER.

British Museum (Natural History), November 9.

THE account of the teeth of Ornithorhynchus, given by Sir Everard Home in "Lectures on Comparative Anatomy," vol. i. p. 305, explanatory of Tab. lix. vol. ii., referred to by Mr. Hart Merriam in your last issue (p. 11), shows, even more clearly than the figures, that the *true* teeth had not been noticed at that time (1814). The passage is as follows:—"In the posterior portion of the mouth, both in the upper and lower jaw, are placed grinding teeth with broad flattened crowns, four in number, one on each side of each jaw. *They are composed of a horny substance* (the italics are my own), only embedded in the gum, to which they are connected by an irregular surface in the place of fangs. When cut through, the substance appears fibrous, like that of nail; the direction of the fibres being perpendicular to the crown, similar to that of the horny crust of the gizzard. The teeth in the young animal are smaller, and two on each side, so that the first teeth are probably shed, and the two small ones replaced by one large one."

It is perfectly evident that here no reference is made to the *true* teeth, and, moreover, the figure of the two smaller "teeth" of young specimens represents merely the immature horny plates. The honours, therefore, still remain with Mr. Poulton and Mr. Oldfield Thomas. OSWALD H. LATTER.

Anatomical Department, The Museum, Oxford,
November 8.

On a Mite of the Genus *Tetranychus* found infesting Lime-trees in the Leicester Museum Grounds.

ABOUT the 13th of last September my attention was called to the strange appearance of a row of lime-trees standing in front of the School of Art buildings in Hastings Street. On examination I found that the whole row, with, I think, only one exception, were almost entirely devoid of leaves, the trunks and branches being covered with a fine web, very closely spun, giving them the appearance of being coated with a thin layer of ice, this glazed look being specially noticeable when standing in such a position as to catch the reflected rays of the sun. At first sight I imagined that I was examining the work of a spider, though I was unable to recollect any whose webs would accord with the character of those under observation. However, a close inspection revealed the webs to be tenanted by an innumerable number of yellowish or orange-coloured mites which were in some places associated together in dense masses or clusters, and more or less abundant over the whole of the trunks and branches.

These mites appeared, on being subjected to a careful microscopical examination, to be identical with *Tetranychus tiliarum*, Mull., a species which it seems that Claparède considers to be only a variety of *T. telarius*, the common "red spider." However that may be, they are at any rate closely allied forms—members of the family *Trombididae*, which possess, as one of their distinguishing characteristics, a pedipalpus with a claw and a lobe-like appendage. In the genus *Tetranychus* the palpi are chelate, the mouth is furnished with a barbed sucking apparatus for the extraction of plant juices, and spinning organs are usually present. It is needless to comment upon their destructiveness to vegetation, for most keepers of gardens and hothouses are familiar with their ravages in one

direction or another, and the difficulty experienced in thoroughly extirpating them.

In connection with the species which forms the subject of the present communication, I notice that Murray, in his work on the "Aptera," says: "It occasionally occurs in such numbers as almost to denude the trees of their foliage; and it has been noted that the stems and branches of such trees seemed covered with a bright glaze. Can this be a fine web?" It was so, most certainly, in the present instance, which afforded me a most favourable opportunity for examination. Again, it appears that the mites are normally found on the under-surface of the leaves, which they cover with a fine web of silk, on which (to again quote Murray) "they are sometimes crowded together in vast numbers; for example, we have seen them so thick on the leaves that they looked as if they were not merely sprinkled with a yellow orange-coloured powder, but as if it was actually in parts heaped up on them, so that none of the green colour of the leaf was visible." Their presence is of course highly injurious, causing the leaves to shrivel and drop; and it seems to me that the fact of their occurrence on the bare bark of the trunks was attributable to the death of the leaves causing them to retreat to that position, uncongenial though it would seem to be. Such trees as preserved their foliage presented no abnormal appearance on the branches, &c., notwithstanding which, in one or two instances, I believe the parasites were present on the leaves, though seemingly not in such extraordinary profusion.

Dugès, writing of *T. telarius*, states his belief that that species passes the winter under stones, and instances the finding of several active individuals so situated in a garden near Paris in the month of October. Regarding this point I may say that my specimens of *T. tiliarum*, which I placed in a box immediately after removal from the trees, speedily ensconced themselves in the most convenient nooks and crannies, in which they spun fine webs. It may be worth noting that the days on which my observations were made were warm and damp, with scarcely any wind, quite typical early autumn days in fact.

F. R. ROWLEY.

Leicester Museum.

Retarded Germination.

I SHALL be much obliged to any of your readers who can give an explanation of the probable cause of the above phenomenon, which I have remarked this year. I sowed a number of patches of seeds of various hardy annuals in the garden in the last week of April; about half of them came up after the usual interval, strongly and regularly. Such were *Calendula Ponget*, *Convolvulus minor*, *Lavatera trimestris*, *Collinsia bicolor*, *Iberis* white and red, *Specularia speculum*, *Linum rubrum*, &c., &c. Then there were some of which a few scattered seedlings made their appearance at this time, and after an interval of about six weeks the greater part of them also came up; among these were *Eutoca viscida*, *Nigella damascena*, *Sphenogyne*, and *Clarkia pulchella*. Thirdly, there were some of which I quite despaired; mignonette, however, appeared thinly about the end of June, and at intervals till August; and in the middle of June a few plants (in proportion to the seed sown, a few) of *Linaria bipartita*, *Madia elegans*, and *Xeranthemum* came up—one consequence being that the last named has not yet flowered. Some of the seeds were obtained this spring from seedsmen, some were my own collection of the last year or two—of the latter were *Calendula*, *Lavatera*, *Convolvulus*, *Specularia*, *Eutoca*, *Nigella*, *Sphenogyne*, and mignonette—so that cannot be said to give any clue. The conditions for germination and growth were favourable, and the season also. I have never remarked before any *annuals* so long in appearing above ground; though in some herbaceous plants I have noticed it, e.g. *Gaillardia*, *Myosotis alpestris*, and *Anemone coronaria*. E. A.

Herefordshire, September 19.

The Relation of the Soil to Tropical Diseases.

AS a humble subscriber to and student of NATURE, will you bear with me while I ask your help, as shortly and plainly as I can? I am in a very secluded corner of one of the Native States of Rajpootana, and I am collecting facts and making observations on the relation of the *soil* to tropical diseases; my ambition being to discuss it not so much from a statistical and geographical standpoint, as from the geological, in its chemical and biological