

Plotting, or Graphic Mathematics. By R. Wormell, D.Sc., M.A. (London: Waterlow and Sons, Limited, 1888.)

THIS book is intended chiefly for those who have mastered the beginnings of algebra and Euclid, and so is very elementary. The method employed throughout is that of using squares, and preparatory exercises are first given to show the student the different purposes to which they may be applied with facility. Proportion and the determination of areas are the subjects of the first two chapters, followed by a chapter on the tracing of paths of projectiles, with various data. The sections of the cone, such as the parabola, ellipse, and hyperbola, are next described, with various methods of tracing them. The book contains a great number of numerical examples, and concludes with a chapter on the higher graphs and curves of observation.

The Elements of Logarithms. By W. Gallatly, M.A. (London: F. Hodgson, 1888.)

IN this little book of thirty-one pages the various rules and methods of treating logarithms are stated and explained in a simple and precise way, and those beginning the subject would do well to read through these few pages. Numerous examples are put in here and there, and at the end the author has added a collection of questions taken from the Woolwich and Sandhurst examination papers for the years 1880-87.

LETTERS TO THE EDITOR.

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Thunderstorms and Lightning Accidents.

AS the season of thunderstorms and lightning accidents is now approaching, I hope you will kindly allow me to make known through your columns the fact that, in the interests of science, the Institute of Medical Electricity is very desirous of obtaining authentic information concerning lightning accidents, whether fatal or otherwise. I should therefore esteem it a favour if some of the many friends of humanity among your readers will assist us to investigate these phenomena by sending me such particulars of accidents of this nature as they may have personal or trustworthy knowledge of as soon after they occur as possible.

Of course, electrical and physiological details are what we most require, but trustworthy general information is often valuable, and will be gratefully received.

24 Regent Street, S. W.

H. NEWMAN LAWRENCE.

Nose-Blackening as Preventive of Snow-Blindness.

I ONLY read Prof. Ray Lankester's letter the other day on the above, which appeared in NATURE of May 3 (p. 7). I have made inquiries among travellers in the snow regions of North America, and find the practice to be quite common and well known, but have met with no one who can explain it. I may say, however, that when I visited New Zealand in 1884 there were in one of the canoes which came off to our ship several naked natives, who had disfigured their faces by blackening their noses and eyes, and running a black fillet round the face, which gave them a villainous aspect; and I, in that insolent ignorance which seems to prevail with all pious people who have dealings with "the heathen of the isles," believed they had got themselves up in this way in order to frighten us. But it may well have been for other reasons. Certainly the sun's heat, reflected from the still waters of the sea, was quite as painful as any I ever felt in the regions of the silver snow. I subsequently found that the black used by these people, who are of a pale complexion, was the oxide of manganese, called in their tongue *labán*.

A. J. DUFFIELD.

The Delaware, Keweenaw Michigan, U.S.A., June 4.

The *Lehrus cephalotes*.

THE beetle which is described in your issue of June 7 (p. 134), by the British Consul at Varna, is probably the *Lehrus cephalotes*, which has proved so destructive to vineyards in East and South-East Europe. It is a dull black beetle, easily recognized by the swollen truncated ends of the antennæ; its length is about 21 mm. It lives chiefly in dry and sandy soil, and during dry weather the beetles leave their holes generally between nine and eleven in the morning and after three in the afternoon, to attack the tender parts of the vine, as Mr. Brophy describes.

Taschenberg is of the opinion that the buds, &c., of the vine which are dragged back to the holes of the beetles serve as food for the larvæ. As the beetles show a marked aversion to water, it is possible that the pest might be lessened by copiously watering the infected areas.

ARTHUR E. SHIPLEY.

Christ's College, Cambridge, June 16.

Proposed Fuel-testing Station for London.

WILL you allow me to put before your readers the following proposition for the establishment of such a station, the desirability of which has been much impressed upon me within the last few years? So far as I know, there does not exist anything of the kind in this country where, as on the Continent, coals can be tested for their evaporative power, the gases of combustion analyzed, and all the results carefully reported on by experts. I subjoin a few details of the proposed station, with probable cost. It should, I consider, be placed on a perfectly independent footing, and managed by experts, under a small committee appointed by those who assist with money or otherwise. It might follow generally the lines of existing coal-testing stations, but with all modern improvements.

In this country it is remarkable that neither the sellers of coal take the trouble to find out how much heat they are offering, nor the purchasers how much they are getting for their money, and this notwithstanding the hundreds of millions of tons of coal changing hands yearly. Colliery-owners and coal-merchants, as well as the large consumers, know very little about coal calorimeters, although the former sell so much heat, and the latter try to utilize it to the best advantage. How few of the latter weigh their coal regularly, or keep any weekly record of the quantities of ashes and clinkers, to find out how much dirt and incombustible matter they are paying for! How few know what it costs them in fuel to evaporate one thousand gallons of water into steam, which is one of the best standards of comparison in a given district!

Locality.—The station might be in close proximity to a river, canal, or railway-station, so that the coals could be delivered easily and cheaply, and the steam allowed to escape under pressure without causing annoyance. A small piece of land doubtless could be obtained in such a situation at a low rent. The boiler-shed should be about 35 × 20 feet, with a small additional shed for storing the fuel.

Cost.—It would be desirable to allow at least £700 for a start, to cover the cost of the boiler-shed, chimney, 20 horse-power boiler (if such were considered large enough), and the special arrangements for measuring the feed-water with tanks, scales, feed-pump, injector, gas and coal analyzing apparatus, calorimeters, &c. Seeing that until the objects of the station become known it would probably not pay expenses, the help of guarantors would no doubt be necessary.

Yearly Expenses.—The charge for testing and reporting upon each combustible would probably more than cover eventually the salaries of a technical manager, his assistant, and the stoker. Some arrangement might possibly be made by which the manager and his assistant should only attend when required, at any rate at first, in order to diminish expenses.

The station would require to be advertised and made known in various ways. Colliery-owners would no doubt find it to their advantage to have their different kinds of coal tested and reported upon, so as to offer them to their customers with their ascertained heating value or evaporative power. Large consumers of coal (railway companies, water-works, and others) should know the heating value of the coal they are paying for, and the percentage of incombustibles.

I add a few notes on the temporary and permanent experimental heat stations known to me.

(1) The earliest fuel-testing station was established in 1847 at Brix, in Germany.

(2) Sir H. de la Beche and Dr. Lyon Playfair made a series of