Numerical Exercises in Chemistry. By T. Hands, M.A., F.R.A.S. (London: Sampson Low and Co., 1884.)

THIS is a neat little book of easy arithmetical exercises on chemical problems which are likely to crop up in the course of laboratory work. The examples, about 650 in number, are to some extent original and partly collected from examination papers. They extend over a good deal of the physical ground more intimately connected with chemistry, and appear to be generally of a useful character. There is no attempt at theoretical instruction beyond what is absolutely necessary for setting out a question. The first four pages are given to exercises on the metric system, after which thermometers, heat, chemical equations, &c., are dealt with. The book will be very useful for students who have got a little way into the subject, but still in the position of beginners.

An Introduction to the Differential and Integral Calculus, with Examples of Application to Mechanical Problems. By W. J. Millar, C.E. (London: Blackie and Son., 1885.)

THIS is the second attempt within a very short time to give an elementary and, as far as possible, interesting exposition of the principles of the Differential and Integral Calculus. One cannot but feel sympathy with the authors of such attempts, for, sooth to say, we often find writers on the less elementary branches of mathematics anything but good teachers or editors of students' text-books.

The present little work has the peculiarity that, being written for engineering students, its illustrations are mainly such as can best be appreciated by those who have an acquaintance with applied dynamics. It is clearly written, the examples are well chosen, and it is on the whole wonderfully accurate, considering the appearance usually made by practical men when dealing with pure mathematics. On page 7 no distinction is made between the increment of x and the square of the increment of x; on page 12 there is a faulty investigation of the rule for the differentiation of a quotient; and one or two others might be specified. These do not detract much, however, from the value of the exposition as a whole, and we cordially hope that the little book may attain its object of smoothing and rendering attractive to practical engineers the rather forbidding pathway leading to the higher mathematics.

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. No notice is taken of anonymous communications.*

[*The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to insure the appearance even of communications containing interesting and novel facts.*]

The Whole Duty of a Chemist

I CANNOT complain if the address which I delivered a few weeks ago to the Institute of Chemistry, although it received an extent of encomium for which I was quite unprepared, should meet here and there with adverse, not to say unfriendly, criticism. Naturally enough, the inculcation of sturdy self reliance is displeasing to the new apostolate of sponging upon others, though it scarcely, I think, justifies a resort to the dialectic juggle of representing the defence of one side of a chemist's duty as meant to be a deliberate expression of "the whole duty of a chemist." The Chemical Society takes cognisance of chemists in one aspect of their work, the Institute of Chemistry takes cognisance of the same individuals in another aspect; and one really need not be a conjuror, though it may put some strain on the fair-mindedness of an editor, to perceive that an address intended for the one organisation would be unsuitable for the other. That distinguished man, the late Dr. James Young, F.R.S., whom you so complacently sneer at, was not a professional chemist at all, but a manufacturing chemist. He was a first-rate manufacturer, whereas Reichenbach was but a third-rate or fourth-rate investigator, if so much; and, your opinion notwithstanding, it is commonly held that the first-rateness of the one man in his own walk more than counterbalanced whatever weight attached to the higher walk of the other. I may cite for your information Sir Frederick Abel, Dr. Frankland, Prof. Dewar, and the late Dr. Stenhouse, as being eminent professional chemists. Though of high repute in forensic circles, I am not aware of their being never heard of at the learned Societies; but I am aware that, in common with other leading chemists of the country, they have had the bad taste to be contemptuous of your own contributions to chemical science. Can it really be that this circumstance has affected unconsciously the spirit of your leading article? I would suggest, moreover, for your editorial consideration, that to supplement criticism of an author's performance with flippant insinuations as to his personal conduct and career, is hardly in accordance with the best traditions of scientific journalism; while it constitutes undeniably bad art, as implying that the production criticised did not of itself afford adequate opportunity for attack, even, of course, with an editor's happy privilege of misrepresentation. As regards the reflections so unmistakably made on myself personally, I have little fear that the irreproachable tone of your remarks will serve to suggest the measure of their trustworthiness; and will only observe "happy are they that hear their detractions, and can put them to mending." As regards, however, your disparagement of the chemical profession at large, from which, I trust, it may not suffer beyond hope of recovery, I would venture to remind you that even that other profession, of which you are so magnanimous a member, has had its calumniators; and the words of a well-known satirist of the last century are considered by some to be as applicable now as ever, that "Of all the cants which are canted in this canting world, the cant of criticism is the most tormenting." Sterne was, happily, unacquainted with the cant of scientific mendicancy, or he might have added that that also was a very fine cant in its way.

WILLIAM ODLING

Oxford, December 1.

[We print the above without comment except on the two following points. Dr. Odling has entirely misunderstood the allusion to the late Dr. Young: no sneer was intended, as will be obvious on a perusal of the whole paragraph. He has also taken as personal to himself remarks made on types not individuals.—ED.]

A Stray Balloon

THE *Times* published on September 29 a short extract from the *Bermuda Royal Gazette*, communicated by me, describing the appearance of a balloon, passing over Bermuda on August 27, and which I suggested might be one of those which ascended this year in England or France, and had not been subsequently heard of. This was followed by a letter from Mr. Charles Harding, F.R.Met.Soc., commenting on the "extreme improbability" of a balloon crossing the Atlantic, and even adding that "a little practical experience in ballooning suggests it to be thoroughly impossible."

As the columns of the *Times* are hardly suitable for the discussion, may I ask that you will allow me to make public through NATURE the further information I have received on the subject.

First, the *impossibility* is, I think, disposed of by the fact that one of the balloons sent up from Paris during the siege did actually travel rather more than half the distance, having descended in Iceland, where it was found long after. We know not how long either balloon was on its course, but it would be bold to assert that if one balloon can float four or five days another cannot float ten days. We know nothing of the exceptional conditions which prolonged the buoyancy: an unusually good varnish, peculiar folding of the silk in its collapse, a film