practical calculations go, Prof. Perry, in getting out in foot-pounds the energy of rotation of a fly-wheel, or in making a conversion into horse-power from C.G.S. units, merely does his division by g (arithmetically or symbolically) at an early stage, where a "poundalist" would probably divide at the end. But with the elementary student it is different; a misconception at the start may stick to him for years unnoticed. Perhaps an occasional bath among all sorts of difficulties in which he is told to sink or swim, such as Prof. Perry advocates, may have a stimulating effect. But let us consider. Prof. Perry's main complaint was that so many are overwhelmed by the poundal. (Oddly enough, he does not seem to mind the dyne, which is on all-fours with it; in fact he has nothing to say against the work of the B.A. Units Committee, beyond a grumble at the fact that they acquiesced in the formula $4\pi r^2$ as representing the surface of a sphere.) Now, for instance, will a student not be puzzled as to the reason why this new system should bear to the English standards a relation so utterly unlike that which the C.G.S. system bears to the French standards? And it seems to me that there must be students who might manage to keep afloat in presence of the poundal to whom Prof. Perry's definition, that "the unit force is that which would give to a body of 32.18 times the inertia of the standard object kept in London an acceleration of 1 foot per second per second"—invented out of pure kindness for them—may prove a very millstone round their necks. And they will be no better off if he raises the talismanic number to 32.19 , as apparently he would now do.

May I conclude by suggesting to Prof. Perry, by way of a small return for the many useful things which I have learnt from him during the past twenty years and more, that an appreciative toleration of rule-of-thumb methods is one thing, but it is another thing to glorify and perpetuate them.

Ashurst Wood, January 12.

M. J. JACKSON.

Durham Science Degrees.

I AM surprised to see the letter of your anonymous correspondent "X." in your issue of January 28.

All the six gentlemen referred to, hold important positions on the teaching staff of this college.

They were recommended by the Council of the college to the Senate of the University as deserving such a degree as would make them members of the Convocation of the University.

"X." insinuates that these gentlemen had no qualification for this honour.

The truth is, that one of them is M.Sc. of Victoria University, three of them are B.Sc. of Scotch Universities; the remaining two are the Senior Lecturers in their respective departments, where they have taught graduates of the University for twelve and thirteen years respectively. HENRY PALIN GURNEY.

The Durham College of Science, Newcastle-upon-Tyne,
January 29.

PHOTOGRAPHY IN COLOURS.

THE announcement has been made during the past week of the discovery of a true process of photography in colours. It is too early now to discuss the matter in its many interesting bearings, since the process so far remains more or less secret, but the following communications will indicate how the question at present stands.

The first is a *communiqué* received from Sir H. Trueman Wood, the Secretary of the Society of Arts.

I am anxious to make, through the medium of the Society of Arts *Journal*, at all events a preliminary announcement of a very remarkable process for producing photographs in colours which was brought to my notice the other day. To say that it enables photographs to be produced in natural colours would not, perhaps, be precisely true, since colouring media are employed; but the result of the process is a photograph in colours of nature—a faithful reproduction in colour of the object photographed—and so, for all practical purposes, it may be said that the long-sought object of photographic

research, photography in colour, has actually been obtained.

The inventor is M. Villedieu-Chassagne, of Paris, who has developed a process originally suggested by Dr. Adrian Dansac, and the following is his method:—(It must be premised that he keeps secret, at all events for the present, the nature of the four solutions he employs.) A negative is taken on a gelatine plate prepared by treatment with one of his solutions. This is developed and fixed in the ordinary manner. It shows no trace of colour. From it a print is taken on glass or paper, the plate or paper being specially prepared by treatment with the same solution. The transparency or the paper print in no way differs, to all appearance, from an ordinary positive, and shows no trace of colour by transmitted or by reflected light. It is then washed over successively with three coloured solutions, blue, green, and red, and it takes up the appropriate colours in appropriate parts, these three colours giving, by their various combinations, all varieties of hue. How it is that this power of selective absorption is given to the components of the photographic image (principally, of course, metallic silver) is, it appears to me, the interesting question connected with the process. The action is certainly previously unknown, and it will, as certainly, repay scientific investigation.

As I declined to be convinced by mere inspection of the finished results, M. Chassagne was good enough to demonstrate the whole process for my benefit, and by the kindness of Prof. Thomson, of King's College, the demonstration was allowed to take place in the laboratory of King's College on two mornings last week. Prof. Thomson and Mr. Herbert Jackson, of King's College, were present on both occasions, and Captain Abney on the second. I must not speak for those gentlemen, but I believe they were as much impressed as I was myself by the remarkable nature of the process and its results.

That such results should be obtained by such a process seemed *à priori* in the highest degree improbable, but obtained they certainly were.

The photographs taken by ourselves were poor, the light (on the morning of Wednesday, 20th) being extremely bad. Nevertheless, the positives (made by one of ourselves on the following day) showed with perfect distinctness, when treated as above described, the colours of a bunch of flowers I had bought at Covent Garden, on my way to King's College, and of various other test objects.

Our own experiments were confined to gelatine films, but M. Chassagne treated with complete success some paper positives he had brought from Paris. These looked like ordinary silver prints toned with gold, but I omitted to ask about the toning.

Further experiments and independent investigation (for which M. Chassagne has kindly promised me the materials) will, no doubt, throw further light on the nature of the process; but I cannot believe that any investigation will throw doubt on its genuine character, for it was carried out under test conditions last week, the sole reservation being the nature of the materials employed.

I hope that a fuller account of the method may shortly be presented to the Society in the form of a paper; but in the meantime it appeared to me that members of the Society would be interested by having placed before them the first information about so remarkable and promising an invention. H. TRUEMAN WOOD.

Captain Abney, who was present at the experiments referred to above, writes as follows:—

The process of colour photography, which I had the pleasure of seeing demonstrated at King's College some ten days ago, through the kindness of Sir H. T. Wood, is a very remarkable one. I went as a sceptic.