LETTERS TO THE EDITOR.

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The University of London.

I AM anxious to make it clear that what Sir John Lubbock has sprung upon us is a radical change in the procedure of Convocation.

The object can only be, it appears to me, to obtain a reversal of its policy. As a political expedient it is, therefore, very similar to the action of those politicians who for analogous reasons would change the constitution of the House of Lords.

Sir John now defines what he calls his "suggestion" in the following words :—"That in voting on the new Charter, members of Convocation should do so 'as at a senatorial election,' *i.e.* by voting papers." I call this a radical change in the procedure of Convocation.

I put aside the not immaterial point that as a Statutory Commission is a delegation from Parliament, the result of its labours will not be embodied in a Charter, but will be virtually in effect an Act of Parliament when approved by that body.

Sir John has made the following statements about his "suggestion" :—

(1) "I am not asking that any privilege which they do not at present possess should be conferred upon my constituents, but only supporting what is now their *legal right* . . . This right I know they highly value" (NATURE, July 18, p. 269).

(2) "It is the *law* at present" (NATURE, August 8, p. 340).

The words which I have put in italics are definite and explicit, and are, of course, in flat opposition to my repeated statement that Sir John's suggestion amounts to a fundamental and, indeed, revolutionary change of procedure. This change consists in extending the mode of voting in a senatorial election to other matters. Now the mode of voting at a senatorial election is prescribed by the 21st clause of the Charter, which is printed in NATURE for July 25, p. 296. It embraces two very important points. First, the right of absent members to vote at all is not absolute but only *permissive*. The words are: "Power to the Convocation, *if it shall think fit*, to enable absent members of the Convocation to vote on such nominations . . . by voting papers." Secondly, this permissive right is strictly limited by the words "*but not so to vote on any other matter.*"

It is upon this vital discrepancy between Sir John's statements quoted above and the provisions of the Charter that I think it is imperative that he should give some explanation. This demand on my part he is pleased to call an "attack." Well, however that may be, he at least owes it to himself to meet it.

I trust, however, that I have now made it clear, and even to Sir John, that his "suggestion" is not the law, but that, further, it involves the abrogation of a portion of the Charter. I think as a member of Convocation that in making such a proposal without consulting that body he has exceeded his functions as our Parliamentary representative. At any rate it must, I think, be admitted that he is making short work of the "right" which his "constituents highly value." (NATURE, August 8, p. 340.)

I am unwilling to prolong a painful discussion. But as Sir John is pledged to bring forward his "suggestion" in Parliament, which of course can incorporate it in the Bill, if it thinks proper, it seems to me of extreme importance to dissipate his contention that it is already the "law." W. T. THISELTON-DYER.

Kew, August 23.

The Nomenclature of Colours.

THE interesting article of Mr. J. H. Pillsbury, published in your last number, recalls to me a passage in my autobiography, which, though it is already in print, will not be issued until after my death. As bearing on the question Mr. Pillsbury raises, this passage may, perhaps with advantage, be published in advance. The plan suggested aims at no such scientific nicety of discrimination or naming as that he proposes, but is one which is applicable with the means at present in use. It is, as will be perceived, based on the old theory respecting the primary colours; but whatever qualification has to be made in this, need not affect the method described. The passage is as follows :—

"I mention it here chiefly for the purpose of introducing an accompanying thought respecting the nomenclature of colours. The carrying on of such a scheme would be facilitated by some mode of specifying varieties of tints with definiteness; and my notion was that this might be done by naming them in a manner analogous to that in which the points of the compass are named. The subdivisions coming in regular order when 'boxing the compass,' as it is called, run thus :—North, north by east, north-north-east, north-east by north, north-east ; north-east by east, east-north-east, east by north, east. Applying this method to colours, there would result a series standing thus :—Red, red by blue, red-red-blue, red-blue by red, red-blue (purple) ; red-blue by blue, blue-red-blue, blue by red, blue. And in like manner would be distinguished the intermediate colours between blue and yellow and those between yellow and red. Twenty-four gradations of colour in the whole circle would thus have names ; as is shown by a diagram I have preserved. Where greater nicety was desirable, the sailor's method of specifying a half-point might be utilised—as red-red-blue, half-blue ; signifying the intermediate tint between red-red-blue and blue-red by red. Of course these names would be names of pure colours only—the primaries and their mixtures with one another ; but the method might be expanded by the use of numbers to each : 1, 2, 3, signifying proportions of added neutral tint subduing the colour, so as to produce gradations of impurity.

"Some such nomenclature would, I think, be of much service. At present, by shopmen and ladies, the names of colours are used in a chaotic manner—violet, for instance, being spoken of by them as purple, and other names being grossly misapplied. As matters stand there is really no mode of making known in words, with anything like exactness, a colour required ; and hence many impediments to transactions and many errors. In general life, too, people labour under an inability to convey true colour-conceptions of things they are describing. The system indicated would enable them to do this, were they, in the course of education, practised in the distinguishing and naming of colours. If, by drawing, there should be discipline of the eye in matters of form, so there should be an accompanying discipline of the eye in matters of colour."

Were some authoritative body to publish cards representing these various gradations of colour, arranged as are the points of the compass, each division bearing its assigned name, as above given, such cards might serve as standards ; and any one possessing them would be able to indicate, within narrow limits, to a shopkeeper or manufacturer, the tint he or she wanted. Of course to complete the method it would be needful that there should be a mode of indicating gradations of intensity, and if the numbers 1, 2, 3, were appended to indicate the degrees of impurity by mixture with neutral tint, a, b, c, might be used to signify the intensity or degree of dilution of the colour.

Very possibly, or even probably, this idea has occurred to others, for it is a very obvious one. HERBERT SPENCER.

The Mount, Westerham, July 23.

Clausius' Virial Theorem.

THE above-named theorem, which appeared in the *Phil. Mag.* for August 1870, much as it is now used in connection with the kinetic theory of gases, received little, if any, attention in England for some time after its introduction. Apparently the theorem was accepted without hesitation or discussion, and, as far as I can learn, neither on its first introduction or since has it received any adverse criticism, or, in fact, any criticism whatsoever. My object in writing this letter is, in the first place, to direct attention to the arguments used by Clausius to establish his theorem, which appear to me to be unsound, and secondly, by applying a simple test case, to show that the theorem itself is not true.

Clausius first proves the following equation.

$$\frac{m}{4t}\int_0^t \frac{d^2(x^2)}{dt^2}dt = \frac{m}{2t}\int_0^t x\frac{d^2x}{dt^2}dt + \frac{m}{dt}\int_0^t \left(\frac{dx}{dt}\right)^2 dt.$$

If for the moment, for the sake of simplicity, we divide both sides of the equation by $\frac{m}{2t}$, we get

$$\tfrac{1}{2}\int_0^t \frac{d^2(x^2)}{dt^2}dt = \int_0^t x\frac{d^2x}{dt^2}dt + \int_0^t \left(\frac{dx}{dt}\right)^2 dt,$$

and this may be written

$$ux = \int_0^t x\,du + \int_0^t u\,dx.$$