Experience has shown that with such a lamp it is possible to obtain, with regularity and safety, a good electric light with twenty-four Bunsen cells, and at first with even twenty cells. Some of these lamps have been in use in the Russian artillery since 1877. This lamp may also be constructed on the principle of the Wheatstone balance.

The form of my lamp intended for public lighting is represented by Fig. 2. The rod A, with the upper carbon-holder works by the effect of its own weight. When the current traverses the lamp the distance between the two carbons is maintained by the aid of helical coils, but these coils and the toothed wheel which controls the movements are worked, as in the former case, on the principal of derivati ons. When the current is interrupted, the carbons come into contact by the effect of the weight of the rod A.

I omit here certain details of construction which are of importance in order that the lamp may work properly.

To sum up, the advantages of my lamp may be enumerated as follows:

1. Its construction is extremely simple, it is free from clockwork mechanism, springs and electrical contacts.

2. It does not require preliminary regulation nor any manipulation before or during its working.

3. Several of these lamps may be arranged in series in a circuit, and they are always in due relation with the intensity and the tension of the current which is to act upon them.

4. The lamp can work with comparatively weak currents, and also produce a very powerful light when the power of the current is augmented.

I am convinced that the problem of the divisibility of the electric light by means of lamps having a voltaic arc can be solved only with the lamps based on the principle of the derivation of the current, which I discovered prior to Messrs. Lontin and Siemens.

Lamps with movable carbons offering a certain resistance between their polar extremities are moreover far preferable, from the point of view of divisibility, to lamps with fixed carbons (with carbons at a fixed distance?) which may offer great variations in the resistance of the arc, in consequence of impurities, the action of the wind, &c. These variations may in fact be greatly reduced in the former description of lamp, and it is not necessary with them to employ currents of such high tension or, if such currents be employed, additional lamps may be inserted in the circuit.

W. TCHIKOLEFF.

GENERAL NOTES.

CLIMATIC influences have of late been rather against phylloxera, which has shown, therefore, a decreased activity for a time. According to M. Boiteau, the treatment with sulphide of carbon and sulphocarbonate of potassium these past three years past seems to have had even a stimulating effect on the vines (besides ridding them of the insect). Some of the vines thus treated are flourishing better than before the parasite appeared.

M. CHARNAY, the leader of the expedition recently sent to Central America under the auspices of the governments of the United States and France, the expenses of which are to be largely borne by Mr. Pierre Lorillard, telegraphs that the Mexican government has signed a treaty giving him all the privileges and facilities he needs in making explorations and has appointed a representative to accompany him.

MARIE EKUNINA describes, in the *Journal für Praktische Chemie*, an investigation conducted in Professor Nencke's laboratory at Berne, on the causes of acid reaction of the animal tissues after death. This reaction is attributed to the decomposition of tissue juices, after death, by fungi. Volatile fatty acids first arise through commencing decomposition of albumin, but very soon the two lactic acids proceeding from glycogen are associated with these. The richer the tissue in carbohydrates, the longer does the acid reaction continue after death; this is especially the case with liver, muscles, and lungs. The shortest and weakest acid reaction is that in the pancreas. Sooner or later, in all tissues, the acid reaction passes over into an alkaline, while the decomposition of albumin increases, and there is much formation of ammonia.

CORRESPONDENCE.

We have been requested by a correspondent of Lieutenant Colonel Ross to publish the annexed letter, which at present may be accepted as an *ex-parte* statement, which complains of a wrong done to him by certain members of the Royal Society. But while placing our columns at the disposal of Col. Ross, we disclaim any personal responsibility in the matter, and will afford ample space for any reply which Professor H. E. Roscoe, or others concerned, may decide to forward to us for publication. Lt. Col. Ross is well known for his works on Blow-pipe Analysis, and has recently published a small manual on this subject, which we find favorably spoken of by the English Scientific press.—[ED.]

LONDON, 11th June, 1880.

To the Secretary of the Royal Society.

SIR.—In forwarding a copy of my new work on the Blowpipe, for the Library of the Royal Society (which I did yesterday), I have the honor and pleasure to inform you for communication to them, that I have now, beyond reasonable doubt, discovered the coloring principle of the *Sapphire*, and can produce stones made chiefly of alumina, of almost any required tint of blue, green, or "amethyst," *without using any chromatic oxide whatever*, a discovery I believe to be quite unique, for, although a Belgian or French chemist has made real "rubies," he is obliged to color them with manganese or other metallic oxide. I do not propose, however, to communicate this secret to the Royal Society, as I at first intended, for the following reason: When in the Spring of 1873, the Secretary of your Society, with the discriminating perception of the useful and novel which is characteristic of men of genius, came to Woolwich to examine experiments which I was then (as a Captain in the Royal Artillery) making in blow-pipe analysis, and eventually read a paper on the subject before your Society. I little thought that influential opposition instituted by Fellows of your Society, would be the chief cause of retarding my humble efforts in the progress of this new science for nearly ten years. I have, however, the most reliable evidence to prove that Professor H. E. Roscoe, F. R. S., and another Fellow of your Society whom I need not mention here, circulated the most disparaging and depreciatory opinions regarding the novel statements on this subject contained in my work "Pyrology," (a detailed exposition of the views first propounded in the paper read before your Society,) the MS. of which was offered by me to Messrs. Macmillan & Co., in 1874, for publication and declined by them, presumably on the advice of Prof. Roscoe.

Of course I have no right, nor do I for a moment wish to complain of the adverse opinion of eminent men of science, though perhaps such opinions would be more suitably expressed in public so as to give me an opportunity of reply; but what I venture most respectfully now to complain of, is that one of my inventions in Blowpipe Analysis—the use of Aluminium plate—which had been disparaged as above mentioned, has now been *adopted* by that department of Owens College, Manchester, over which Prof. Roscoe so eminently and justly presides, and that a German work on the subject, translated in that department, has interpolated in it an account, spread over thirteen pages, of the very Aluminium plate reactions rejected by Prof. Roscoe in 1874, and, worst of all, the invention is attributed to somebody else in the index of the book, which has been adopted as a text book by the Owens College.

As I have sustained a serious loss by the publication of my work on the subject, chiefly through the opposition above referred to, I would most respectfully ask the council of your society whether they do not think it fair that I should reap any benefits *now*, derivable from my inventions or discoveries? I have the honor to be, Sir,

Your most Obedient Servant,
W. A. Ross, Lt. Colonel,
Royal Artillery (retired list).

The Secretary Royal Society,
Burlington House, Piccadilly W.