

so that the tension of the electricity as compared with a chloride-of-silver cell is as

$$\frac{146.7 \times 20}{95} = 30.88 \text{ to } 1.$$

The copper disk, after its separation from the zinc, acts as a condenser to the latter; and as soon as the copper disk is connected automatically with earth the bound electricity of the zinc is set free, and the needle of the electrometer makes a sudden jump. To observe this effect it is necessary to work the apparatus slowly.

When earth-connexion was made with the copper disk, and also subsequently with the zinc disk after the charge had been given off from it, and before a new contact, no sensible difference was observed in the deflection of the electrometer.

With an ordinary Elliott tangent-galvanometer, and indeed with one twice as sensitive as those generally made, not the slightest deflection of the needle was manifested; with, however, a Thomson galvanometer a deviation of the needle was obtained of 35 divisions in one direction and 35 divisions in the other, according as the zinc conductor was connected with one or other end of the galvanometer and the other end with earth.

The current, though feeble, is quite manifest nevertheless. To form a rough notion of the electromotive force, a piece of copper wire 0.5 inch long and 0.03 inch diameter was connected with one end of the galvanometer, and a piece of zinc 0.25 inch diameter and 0.5 inch long with the other, and the one held between the right-hand finger and thumb, and the other between the left-hand finger and thumb, using $\frac{1}{99}$ shunt in the galvanometer or only $\frac{1}{100}$ part of the current; this produced a deviation in the scale of 50 divisions with dry fingers, and 150 divisions when the fingers and thumbs were moistened; so that the quantity of electricity developed by the contact of dissimilar metals is consequently extremely small when the area (28.27 inches) of each disk is taken into account.

XXVII. "Note on the Mycelium described in my Paper on Smallpox of Sheep." By Dr. E. KLEIN, F.R.S. Received June 7, 1876.

In the above paper, which was printed in the Philosophical Transactions (vol. 165. pt. 1), I described and figured, in Section iv. part c, the presence, in the lymphatics of the skin of the pock, of what I regarded to be the mycelium of a fungus which I termed *Oidium variolæ* (see figs. 9, 10, and 11 of that paper). Similar features were described and figured in the cavities of the primary and secondary pustules.

My attention has been drawn by Dr. Charles Creighton to appearances, in many respects similar to those described by myself, which he found in

preparations of tissues* altogether removed from the suspicion of containing fungoid growths of that or any other character.

A comparison of the two kinds of specimens convinced me that the appearances represented in my figures 18 and 19 are not due, as I supposed, to a mycelium in the cavities of the primary pustules, but are products of coagulation of some albuminous or kindred material by the reagent that had been employed for hardening the object in question (dilute chromic acid and spirit).

The vegetable nature of the other structures—viz. those represented in figs. 9, 10, and 11 (*i. e.* the supposed mycelium in the lymphatics of the skin of the pock) as well as those in figs. 16 and 17 (*i. e.* the mycelium in the cavities of the secondary pustules)—becomes therefore very doubtful. My doubt as to these being also produced by coagulation is based partly on the similarity between the last-named features and those undoubtedly non-vegetable objects in Dr. Creighton's specimens and also in my figures 18 and 19, and partly on the following circumstances:—(1) I have lately ascertained that blood, especially in febrile conditions, which is contained in blood-vessels of tissues that had been subjected, in a fresh condition, to the hardening fluid (*e. g.* chromic acid) presents appearances very similar to branched mycelium-threads to which are attached numerous conidia; the presence of more or less unaltered blood-corpuscles proves their true character†. (2) I have likewise seen that blood-plasma containing globulin or parts of blood-corpuscles, when in lymphatic vessels or kindred spaces, show sometimes in the course of coagulation similar appearances. Whether the greater number of the thread-like structures is due to fibrin or to blood-corpuscles I cannot determine as yet; but it seems to me that both is the case.

In the case of *Variola ovina* it is therefore probable that the supposed mycelium in the lymphatics is due to coagulation of some substance directly connected with blood. Whether the appearances in the cavities of the pustules, however, owe their origin to the same or to certain mucous substances, as appears in Dr. Creighton's specimens, and under what conditions these substances present the fungus-like characters, is a subject which I intend to investigate more fully.

* Sections through hardened mammary glands.

† Blood-corpuscles, or only portions of them, become fused so as to form longer or shorter thread-like structures, to which are attached smaller or larger particles of blood-corpuscles.