to cure a fully developed malady is admirable; the attempt to arrest disorder in the nascent stage, better still; but best of all is prophylaxis. This being so, we cannot but welcome all projects which aim at facilitating the study of the early symptoms of insanity by medical men, and the procuration of advice as early as possible by the masses. The establishment of a hospital for acute and recent cases in town, and the adoption of an out-patient system at a prominent county asylum, are projects with such aims; and the outcome of these enterprises will be awaited with much interest. By inquiries of this nature, if by any, shall we be enabled to distinguish causes from early symptoms and be guided to the discovery of the real occasion of a disorder. In conclusion, reference may be made to the growing encouragement of pathological research in asylums, as affording further token of the progress of the times. Assuredly, therefore, we may enter afresh upon the study of psychiatry under the quickening influence of hope, leaving behind the rust, begotten of over-much rest in the past, and welcoming the signs of activity in the future.

Sheffield.

ON THE

ACTION OF THE POSITIVE POLE OF THE CONSTANT GALVANIC CURRENT UPON MICROBES, AND UPON THE BACTERIA OF CHARBON ESPECIALLY.¹

BY DRS. APOSTOLI AND LAGUERRIÈRE.

(Translated from the MS. by Dr. HORATIO R. BIGELOW.)

THE antiseptic and germicidal action of the constant galvanic current described by one of us in 1886² has been the object of our common researches for two years. In a note presented to the Academy of Sciences, Aug. 12th, 1889, we stated the result of our experiments made by placing both poles in the test tube containing the culture bouillons, and at a slight distance the one from the other. All of these experiments were made upon after-cultivations, and followed by animal vaccination (rabbits and snakes). Our first and chief conclusions at that time were: 1. The action of the constant galvanic current upon cultures is in direct proportion to its strength measured in milliampères. 2. Other things being equal for the same intensity, the question of the duration of the application in time is of no value, the intensity of the current being the chief factor. 3. A current of 300 milliampères or more applied for five minutes always kills the bacteria of charbon. Cultivations made with the culture so treated remained sterile, and inoculation of a snake developed nothing. 4. A current of 200-250 milliampères applied during five minutes does not always and surely destroy the virulence. Some snakes still died, but more slowly than those vaccinated with the same culture before subjected to the action of the current. 5. A current of 100 milliampères or less, even after an application of thirty minutes, does not destroy the virulence; it produces attenuation, which augments with the intensity of the current. Snakes inoculated died one or two days later than the others. Since this time we have found out that these effects are independent of the thermic action which accompanies electrolysis, and we have studied the isolated influence of the poles and of the inter-polar portion of the circuit.

The complementary conclusions which we have reached are: 1. By suppressing the calorific effects of the current we can obtain destruction and attenuation of the germ vitality. 2. The positive pole alone kills or attenuates pathological organisms over which inter-polar action or the action of the negative pole have no control. 3. The antiseptic action of the positive pole (in the midst of a distinct culture entirely separated from the negative pole) exercises itself even with smaller doses than in the first experiment (where the two poles were near each other, attenuating their reciprocal action).

The positive pole does not kill with 50 milliampères during a period of application varying from five to thirty

minutes; but the attenuation commences and increases progressively, to be constant, during the first five minutes between 100 and 150 milliampères. The general conclusion to be drawn from our experiments is that the continuous current of medical dose (from 50 to 300 milliampères) has no action, *sui generis*, upon germ cultures in a homogeneous medium, and that the unique action of the positive pole is due to the disengagement of acids and of oxygen, as we shall show in another communication.

The instrument made use of in our experiments is shown in the figure. The axis of the tube has a length of 25 centi-

metres, measured from the positive pole to the negative. The section of the tube is six centimetres; there are two strictures of 2 centimetres in length each, and about 5 square centimetres in section. The total resistance of the tube when in order is equal to that of a rectilinear tube 25 centimetres long and 5.5 square centimetres across.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

ERUPTIONS AND INFLUENZA.

BY E. D. MAPOTHER, M.D., F.R.C.S.I.

OBSERVERS have described several rashes which have appeared during the course of influenza, but not one of them is an essential feature of the disease, all being results of its multiform pathogenic influences or of any strongly marked diathesis in the patient. I have noticed that the great debility during convalescence has caused, when the subjects were eczematous, the usual lymphatic exudation to become purulent, or has predisposed to acute attacks of pustular eczema, which have been very frequent of late. Tonic treatment for a long period was generally needed. One exceptional case in which, under local measures, improvement occurred very rapidly, may be noteworthy. The patient, having an urgent professional engagement two days later, ardently desired that the disfiguring crusts of dried pus on the face and neck should be removed and not renewed. For the rest of that day the crusts were frequently soaked with hot solution of soft soap, and at night were covered with wet lint and oiled silk. They came off easily in the morning, and during the day their sites were four times sponged with bichloride of mercury solution (1 in 1000). Only slight redness remained, and no eruption or exudation reappeared. In chronic cases the ammoniated mercury ointment, diluted with two parts of lanoline ointment, was found effectual, the pyogenic cocci being continuously destroyed.

Cavendish-square, W.

OXYGEN GAS IN PNEUMONIA.

BY JOHN CHAMBERS, M.D. Q.U.I.

THE large number of deaths from pneumonia and its complications in the early part of the present year suggests to me the making of a few remarks as to the great usefulness of the administration of oxygen gas in certain severe cases

¹ Read before the Academy of Sciences, Paris, April 28th, 1890.

² Apostoli: Treatment of Endometritis by Intra-uterine Chemical Galvano-caustic, pp. 38 and 50.