The Action of Calcium on the Cerebral Cortex [*Azione del Calcio-ione sulla corteccia cerebrale*]. (*Riv. speriment di Freniat.*, vol. xxx, fasc. 1.) Roncoroni, L.

In this paper Roncoroni gives the result of his researches on the action of calcium on cortical activity. Sabbatani previously had demonstrated the inhibitory power exercised by calcium over cellular activity and the antagonistic action displayed by substances capable of neutralising this element when used to control its effect. In addition to the salts used experimentally by Sabbatani as antagonistic to this action of calcium, the author discovered many others, of which he found sodium sulphate of most value. His conclusions are that substances which render calcium inert, either by precipitation or other means, when their action is not interfered with by any other factor, cause an increase of the cortical excitability, while the salts of calcium depress it.

In the salts of calcium used for these experiments care had to be taken to eliminate those whose acid radicals might of themselves have a depressing cortical action which would interfere with the result by complicating the action of the calcium base.

He used the following salts of calcium in his experiments: the bromide, iodide, nitrate, acetate, and lactate. The chloride was but little employed, as Sabbatani had already used this salt extensively in his experiments. Of these, four only gave the proper physiological effect of the calcium, namely, the chloride, acetate, lactate, and nitrate, the acid radicals being innocuous. In the case of the other two the depressing action of the base was complicated by the fact of bromine and iodine being themselves brain-depressors.

Roncoroni's experiments were conducted on dogs. He laid bare the motor region of the cortex on one side, and tested first the amount of current necessary to cause a slight movement of the fore-paw. He then applied a solution of the calcium salt to the cortical surface on a pledget of cotton-wool, and after ten minutes tested the amount of current necessary to produce a similar contraction. Following this a solution of the salt antagonistic to calcium was applied—sodium phosphate—and the electrical excitability was tested anew.

From these experiments he found that sodium phosphate, which precipitates calcium, has an antagonistic action to that of the acetate, lactate, and nitrate of calcium. By applying a solution of sodii phosphate he raised the cortical excitability which had been lowered by the calcium salts, and this was again depressed if the salt of calcium were applied afresh. This experiment was not so clear of demonstration in the case of the iodide and bromide of calcium for reasons previously given. In the experiment with the iodide another complication presented itself, *viz.*, the congestion of the cerebral area experimented on, which interfered with the action of the antagonistic salts, and probably prevented the absorption of the solutions subsequently applied.

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