same time put under ether anesthesia which was continued for two hours. The pigs in the first series died in eighteen hours while those in the second series survived.

Further experiments are being carried out which attempt to gain an insight into the nature of the phenomenon, how far it can be applied with relation to other toxins and the effect of other anesthetics. The quantitative and time relationships are also being studied.

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The composite nature of botulinus toxin.

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As we will show in detail in another paper, the lethal dose of botulinus toxin by the mouth is roughly 1,000 removed from that sufficient to kill by the intraperitoneal route. This relation seems to hold true for all the laboratory animals which we investigated, including birds, and is responsible for the failure of certain investigators to kill birds by feeding even large quantities of weak toxin.

In attempting to purify the toxin by precipitation, we were surprised to find that, whereas the purified toxin retained its full potency when tested by injection, it became 100 times less toxic by mouth. In general the further the purification was carried, the greater was the loss in potency of purified toxin when tested by mouth. We have been able to reëstablish the toxicity (by mouth) of such purified toxin by merely adding to it the substances removed by the process of purification.

Since the potency of our purified botulinus toxin as tested by injection remains the same, whereas the toxicity by mouth varies according to the degree of purification of the toxin, it seems to us that the power of crude botulinus toxin to be absorbed through the intestine is dependent upon the presence of secondary substances mixed with the true botulinus toxin.