Most of the experiments in which pressure was not permitted to go below 50 or 60 mm. Hg gave negative results. A few of the handling experiments were exceptions.

These negative experiments served as controls, indicating that the anesthetizing and general operative procedure did not bring about the results obtained.

To be certain that the results were due to the presence in the blood of the secretion of the adrenal gland and not to the secretion of some other organ, for example the pituitary body, the adrenals were ligatured in such a way that while the blood from the lumbar branch of the adrenal vein was permitted to enter the vena cava, no material could pass from the adrenal organ into the circulation.

Only negative results were obtained under these circumstances.

These experiments, therefore, seem to indicate that an increased activity of the adrenals accompanies a somewhat prolonged low blood pressure condition.

51 (1115)

On the augmenting action of ergotoxine (Dale and Barger) on the gastrointestinal movements.

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About ten years ago Meltzer and Auer[1] reported animal experiments in which intravenous injection of ergot augmented strongly the spontaneous movements of the gastrointestinal canal and increased the motor responsiveness of the canal to vagus stimulation. In these experiments a fluid extract of ergot (U. S. P.) was used. At about the same time Dale and Barger succeeded in isolating from ergot an alkaloid which they named ergotoxine. In their interesting publication on that preparation a year later they ascribed the characteristic physiological effects of ergot to the presence of this alkaloid. With reference to the action upon the gastrointestinal movements they emphatically state that the effcct is comparatively slight and inconstant, and believe that

[1] *Amer. Jour. of Physiol.*, XVII, 143, 1906.

the augmentation of the movements of the intestines observed by Meltzer and Auer must not have been due to a principle peculiar to ergot. "The effect on the intestinal movements," they state, "of a complex fluid such as the liquid extract, containing, apart from principles the action of which is peculiar to ergot, choline and various other vascular depressants (ergotoxinic acid, etc.), seems to us to need a more critical analysis before any great importance is attached to it as a specific action."[1]

On account of that statement the behavior of peristalsis was studied by us under the influence of Dale and Barger's specific alkaloid of ergot, ergotoxine.[2] We shall confine our present communication to the results which we have obtained in the experiments on rabbits. The gastrointestinal gut was observed in a trough made by suspension of the incised abdominal wall and kept filled with a warm Ringer solution. The animals received artificial respiration during the entire experimental observation. The results were unmistakable and easily demonstrable. Against Dale and Barger we must insist that *augmenting action of their ergotoxine upon peristalsis is very pronounced and constant.* It is only indispensable that the animal should not be too deep under the influence of ether, the only narcotic which we have used in the present experiments. A trick which favors further the augmenting action of ergotoxine upon peristalsis is the injection of a warm isotonic solution (0.9) of NaCl into the fundus of the stomach. After intravenous injections of 10 mgr. of ergotoxine, not only the pendular movements and the circular constrictions become greatly intensified, but the contents of the intestines are seen carried down by "peristaltic rush" (Meltzer and Auer)[3] through large parts of the small intestines and even through their entire length from the stomach to the cecum. The movements are followed by a strong constriction of the intestine extending over an inch and longer. Even the empty parts of the intestines of a ribbon-like relaxed appearance show unmistakable contractions after an injection of ergotoxine. The

[1] *Biochemical Journal*, II, 287, 1907.

[2] It was obtained from Burroughs, Wellcome & Company. The alkaloid is prepared in the Wellcome Physiological Research Laboratories, London, of which H. H. Dale is the director.

[3] *Amer. Jour. of Physiol.*, XX, 259, 1907.

peristaltic augmentation became manifest also in parts of the colon and not infrequently even in the otherwise inert cecum. The augmented waves of the stomach are not very pronounced but the pyloric part of the stomach often contracts strongly as a whole. The vagus nerves were stimulated within the thorax in their course upon the lower part of the esophagus. Ergotoxine unmistakably increases the motor responsiveness of all parts of the gut to stimulation of the nerves even when their cardiac action is in no way involved.

52 (1116)

An allergic skin reaction to diphtheria bacilli.

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While immunity in diphtheria may be regarded as being principally antitoxic in nature, it is highly probable that antibodies of a lytic nature may be concerned. With this in view, we have applied an allergic skin reaction in addition to the toxin test of Schick, in studying immunity in diphtheria to the following persons:

1. To 123 persons of various ages, most of whom were healthy and well and had never had diphtheria or received an injection of diphtheria antitoxin.

2. To 61 persons receiving curative or prophylactic doses of diphtheria antitoxin.

The antigen for the allergic tests was prepared of 45 recently isolated cultures of diphtheria bacilli of various types; each culture was grown in glucose broth for four days and all mixed in a single flask and shaken mechanically with glass beads to break up clumps. To each 100 c.c. of the emulsion was added 5 c.c. of sterile horse serum antitoxin (2,500 units) and the whole shaken at room temperature for four hours. After this time the emulsion was placed in sterile centrifuge tubes and the bacilli separated and