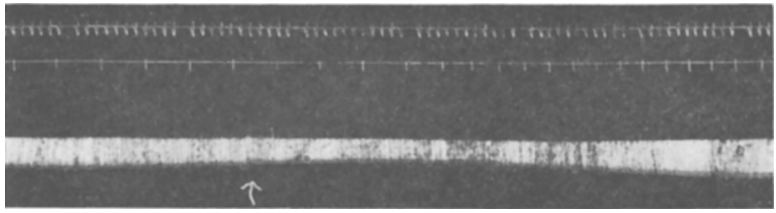

FIG. 2.
Perfused rabbit heart. Perfusion fluid contains acetyl-B-methyl-choline, concentration 1:50,000, which has slowed the flow and diminished the beat. 0.6 mg. adenosine injected at arrow.

came widely dilated and most preparations were abandoned because the vessels had become non-reactive in a state of maximum dilation. The rate at which the heart was maintained was just above the normal rhythm, approximately 120 to 150 beats per minute, and this together with a high or maximum coronary flow at all times, provided the most favorable conditions that could be established, and so the recorded beat was necessarily optimum as far as it could be affected by external factors. From more recent experiments it has become certain that when the condition of the heart is not good and the coronary flow has fallen off, the contraction may be expected to improve as a result of the increase in flow that follows adenosine. The value of adenosine in improving the condition of the perfused heart and prolonging the usefulness of the preparation has been repeatedly demonstrated in these experiments.

The power of adenosine to counteract the diminution in coronary flow produced by acetyl choline has been reported.[4] When the coronary flow and the size of the beat have been reduced by acetyl-B-methyl-choline, adenosine causes an increase in flow and an increase in the size of the beat (Fig. 2).

7971 C

Unusual Allergic Manifestations in B. Dysenteriae Infections.

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In a study of 125 cases of bacillary dysentery caused by various strains of *B. dysenteriae,* namely, Flexner, Duval, Shiga and Hiss-Y, it was noted that 4 of these presented symptoms that differed

from the usual case. These symptoms were those commonly noted in cases of bacterial protein hypersensitiveness. One of us (Silverman) suspected in these cases of chronic bacillary infection an allergic reaction, because of the peculiar manifestations following vaccine therapy. It was noted that shortly following the injection of small doses of the specific vaccine, the toxic symptoms of the acute infection were inaugurated, including an anaphylactic skin reaction at the point of the injection, and certain well defined constitutional allergic evidences. Of these, the most marked were those of the vasomotor mechanism. In 2 cases, the allergic reaction was so severe as to be alarming, in that the heart action became rapid and weak and there was a concurrent fall in the blood pressure. The temperature in these cases was always up following the injections but at no time was the elevation above 1° to 1½° above normal. Undoubtedly, the vasomotor disturbance together with the effect upon the heart muscle explained the near collapse which was noted for 2 of the cases. In one case, in which there was a return of the diarrhea, the dejecta contained considerable blood. This bloody mucus stool was identical with the typical stool of her acute bacillary colitis, which she had experienced 5 years previously. The question arose whether the return of blood in the dejecta meant a lighting up of the infection or the rupture of small vessels in the bowel as a result of allergy. Subsequent culture of these stools revealed the presence of *B. dysenteriae*. It is our opinion that the return of blood in the stool was due to vascular rupture (allergy) rather than to the return of infection. This belief was arrived at on the ground that a well marked cutaneous reaction occurred at the vaccine inoculation site, which reaction could only be allergic.

The allergic reaction seen in certain cases of chronic bacillary dysentery would seem to prove that the intestinal infection is still present, because in some cases of chronic bacillary dysentery, in which the specific organism was no longer detectable in the stool, there was no allergic skin reaction.

It is a well recognized fact that in all bacterial allergies the living antigen (micro-organism) is still in the host. Only in this way can the tissue hypersensitiveness be accounted for. For this reason, we believe that the cutaneous allergy in certain cases of bacillary dysentery is of considerable diagnostic importance. Certainly, it is a simple, sure method of diagnosis compared to that of the searching for the specific bacillus in the stool. Furthermore, it is far more reliable as a diagnostic point than the agglutination reaction because the latter is very often absent in chronic bacillary dysentery, and

when present is in such low dilutions as to be of little significance.

The allergic state seen for certain cases of chronic bacillary dysentery undoubtedly explains the failure of vaccine therapy in the cure of the infection. These cases can be advantageously treated with vaccine provided they are desensitized. Our experience substantiates this opinion, having after desensitizing the patients caused a disappearance of symptoms and the organisms from the stool following the administration of the vaccine.

The sensitivity is group specific. It follows closely the agglutination reaction, although it is not as individually specific as the agglutinins. The agglutination reaction is often positive only for the homologous organism; the skin test may be positive for different strains of the same organism. For instance, the Shiga organism isolated from Case 1, was agglutinated by the serum of the patient of Case 1, whereas skin reactions to this organism were obtained both in Case 1 and Case 2. Case 3 showed positive skin reactions to the same extent as the agglutination reactions. In both types of tests reactions were obtained to non-homologous strains.

TABLE I.

Case	Stool Organism Isolated	Agglutination
1	*B. dysenteria* (Shiga)	Positive against autogenous isolated organism, dilution 1/80
2	*B. dysenteria* (Shiga)	Positive, dilution 1/160, against autogenous isolated organism Shiga.
3	None of Dysentery Group	Positive for 1/40 and 1/80 dilution, *B. Flexner*, and for 1/40 Shiga.
4	*B. dysenteria* (Flexner)	Positive, dilution 1/160 against autogenous isolated organism.

Skin tests were made by the intracutaneous method, 1/100 cc. injected intradermally; readings were taken at 15 minutes and at 24 hours. Controls were used with each series of tests. A test was considered positive only when the wheal and erythema at the 15-minute reading was at least 2 to 3 times that produced by the con-

TABLE II.

Vaccine of Organism	Case No. 1	2	3	4
Staph. albus	—	—	—	—
B. Shiga (Case 1)	Pos.	Pos.	Pos.	—
B. Shiga (Case 2)	—	Pos.	Pos.	—
B. Flexner-Harris	—	—	Not used	—
B. Flexner (Stock)	—	—	Pos.	—
B. Duval	—	—	Not used	—
B. typhosus and Paratyph. A and B	—	—	—	—
B. Flexner (homologous)	—	—	—	Pos.

trols. The 24-hour reaction was recorded but was not used as a criterion of sensitivity in this study.

The vaccines as a rule contained around three billion organisms to the cc. Tests were made with serial dilutions, using a 1/10, 1/100, 1/1000 dilution of these vaccines.

TABLE III.
Agglutinations.

	Case 1			Case 2			Case 3			Case 4		
	1/40	1/80	1/160	1/40	1/80	1/160	1/40	1/80	1/160	1/40	1/80	1/160
B. Hiss (Stock)	—	—	—	—	—	—	Not done			—	—	—
B. Duval (Stock)	—	—	—	Not done			"	"		—	—	—
B. Flexner (Stock)	—	—	—	—	—	—	Pos.	Pos.	—	—	—	—
B. Shiga (Stock)	—	—	—	—	—	—	Pos.	—	—	—	—	—
B. Shiga (Case 1)	Pos.	Pos.	—	—	—	—	Not done			—	—	—
B. Shiga (Case 2)	—	—	—	Pos.	Pos.	Pos.	"	"		—	—	—
B. Flexner (Homologous)	—	—	—	—	—	—	—	—	—	Pos.	Pos.	Pos.

Summary. We believe we have demonstrated atopic (anaphylactic type) sensitivity for *B. dysenteriae,* occurring during course of infestation or infection of the bowel with these organisms. We know of no previous report. Cook's postulates have been fulfilled by: 1. Positive cutaneous reactions with the vaccines. 2. Reproduction of symptoms by subcutaneous injections of the vaccines. 3. The organism was isolated from the individual (in 3 cases; in the 4th serological evidence indicated the patient's contact with the organism).

7972 P

Sugar Utilization in Hypophysectomized Rabbits.

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The fact that serious hypoglycemia may develop in hypophysectomized rabbits and dogs is well known.[1-4] In preliminary experiments it was found that glucose must be administered to fasted

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