

TABLE II.

Fermentation Periods in hr.													
Media	Dog	24	48	72	24	48	72	24	48	72	24	48	72
Inoculated and Incubated.													
Pectin	1	6.5	6.0	6.3	2.5	4.5	4.0	1' 18"	33"	34"	.78	.15	.00
Broth	1	7.2	7.45	7.9	1.0	0.5	0.3	33"	32"	32"	.00	.00	.00
Pectin	2	6.7	5.9	6.3	2.4	5.0	3.8	47"	32"	33"	.67	.12	.00
Broth	2	7.3	7.35	7.5	1.0	0.8	0.7	34"	31"	31"	.00	.00	.00
Pectin	3	6.9	6.6	6.5	2.0	2.5	3.5	1' 06"	35"	32"	.81	.20	.00
Broth	3	7.25	7.35	8.1	1.0	1.0	0.5	33"	31"	32"	.00	.00	.00
Pectin	4	6.95	6.0	6.6	1.8	5.0	3.3	1' 16"	32"	33"	.76	.24	.00
Broth	4	7.3	7.4	7.55	1.0	0.7	0.6	33"	31"	32"	.00	.00	.00

* Pectin-broth.

† Broth control.

should be noted that, in 3 of the 4 tests cited in the table, after 48 hours base was produced, which probably arose from the broth.

Work dealing with the isolation of responsible bacteria, determination of the exogenous or endogenous source of the enzyme, and the products of decomposition is being carried out.

Conclusion. The results show that pectin is decomposed by bacteria present in feces obtained from human and canine subjects on a normal diet and one after pectin had been added.

12067 P

Influence of Emotional Excitement on Insulin Content of Blood in Normals and Psychotic Patients.

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It was shown recently¹ that emotional excitement leads to a dis-

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¹ Gellhorn, E., Cortell, R., and Feldman, J., *Science*, 1940, **92**, 288.

charge over both vago-insulin and sympathetico-adrenal systems, the effect on the latter predominating in the normal animal. These observations are supplemented by the present studies in which the insulin concentration of the human blood was determined by an assay on the hypophysectomized-adreno-demedullated rat.²

If 1 cc of normal human blood is injected intraperitoneally into such rats and the blood sugar is determined after one hour a very slight fall in blood sugar is observed and the animals do not show any symptoms (A). If, however, excited psychotic patients are tested it is found that their blood produces a marked hypoglycemia in test animals, frequently leading to coma or hypoglycemic convulsions. It is noteworthy that this result was regularly obtained with the blood of 13 excited patients (C, Table I) whose blood sugar was unaltered. Moreover, in 2 cases (G) it could be shown that in quiet periods following the excitatory state the test no longer indicated increased amounts of insulin in the blood but produced a reaction similar to that of our control cases. Apparently emotional excitement leads in these cases predominantly to an increased secretion of insulin, whereas in normals the effect on the sympathetico-adrenal system prevails.^{1, 3} This conclusion is supported by the comparative study of Groups B, C, and D. Students excited by the writing of the semester examination served as controls. Their blood sugar was somewhat elevated and caused a slight rise in the blood sugar of the test rat (B). The blood of an excited patient with a similar hyperglycemia (D) caused a conspicuous hypoglycemia in the test animal. Even in the case of Group E in which emotional excitement led to a more marked hyperglycemia indicating a much greater adrenalin secretion than in the excited controls (B), the test animal reacted

TABLE I.
Emotional Excitement and Insulin Content of Human Blood.

Group	No.	Blood sugar of the subject	Test	Remarks
A	7	78.9	57.4*-51.4†	Normals, quiet
B	5	96.5	58.4 -61.5	" excited
C	13	78.8	59.0 -34.4	Psychotics, excited
D	1	94.6	60.2 -39.7	" "
E	3	106.2	58.7 -51.2	" "
F	2	80.3	58.0 -34.9	" "
G	2	75.2	59.1 -52.1	Same patients, quiet as in F

* Blood sugar of the hypophysectomized-adreno-demedullated rat before injection of 1 cc blood/100 cc rat.

† Blood sugar of test rat one hour after injection.

² Allen, A., Feldman, J., and Gellhorn, E., *Proc. Am. Physiol. Soc.*, April, 1941.

³ Gellhorn, E., Allen, A., Cortell, R., and Feldman, J., *Proc. Am. Physiol. Soc.*, April, 1941.

with a slight hypoglycemia similar to that found in the unexcited control group. Obviously, the insulin concentration of the blood was increased sufficiently to offset completely the effects of adrenalin on the blood sugar of the test animal.

With respect to the reactivity of the vago-insulin and the sympathetico-adrenal systems our experiments can be divided into 3 groups. The first consists of excited controls showing sympathetico-adrenal effects but no signs of vago-insulin excitation; the second group consists of the majority of psychotic patients showing absence of sympathetico-adrenal effects (blood sugar unchanged) and greatly increased insulin content of the blood. Finally, the third group comprises excited patients in a somewhat intermediate group in which the reactivity of the sympathetico-adrenal system is adequate to cause a rise in the blood sugar of the patient but the test on the hypophysectomized-adreno-demedullated rat reveals that insulin is present in increased amounts enough to offset the effect of adrenalin on the blood sugar of the test animal.

12068 P

Heart Sounds in Myocardial Infarction Due to Acute Coronary Occlusion.

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In 80 cases of acute coronary occlusion a phonocardiographic study was made of the effect of myocardial infarction on the character of the heart sounds. Using the Sanborn Stetho-cardiette, phonocardiograms were recorded daily during the first 2 or 3 weeks following the attack and 3 times weekly thereafter until discharge. The apical heart sounds were recorded with the patient in the semi-recumbent position and holding his breath in expiration. For proper timing, an electrocardiogram and venous pulse curve were recorded simultaneously.

The first and second heart sounds were analyzed for intensity (amplitude), pitch (frequency) and duration, and the presence of normal or accentuated auricular and third heart sounds was noted. The analysis was aided by the use of 2 microphones, one amplifying all sound frequencies equally, including those of very low pitch which are usually inaudible, and the other selectively amplifying the