

always be demonstrated by making the medium alkaline with NaOH. There is no evidence of a protein sparing action by the carbohydrates.

All strains produced acid in excess of alkali in arabinose (final average pH 6.2), xylose (pH 6.6), and galactose (pH 6.8). Greater variations in the power to ferment were noted in the culture series containing glucose. Of 80 bovine strains tested 13 or 16% gave a final pH 6.2 or below, 28 or 33% had a final reaction of pH 7.3 or above. Practically every bovine strain fermented glucose to some degree. Five caprine strains recently isolated on the Island of Malta showed very little glucose utilization, while 3 strains isolated from Arizona goats produced sufficient acid to reduce the pH to 6.7. The average final reaction of 86 strains of human origin was pH 7.07 with 13% giving readings of pH 6.2 or less in glucose media. Porcine strains failed to utilize glucose in appreciable amounts, the final reaction averaging pH 7.5.

Levulose utilization almost paralleled that of glucose in the different groups. In general it was fermented slightly less than was glucose.

The fermentation of the monosaccharides can not be correlated in any way with the type of *Brucella* grouped either according to host origin, serologic tests, hydrogen sulfide production or genisistatic behavior.

5208

Lactate Production in Muscle Stimulated Briefly.

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In dogs anesthetized with amyral we have observed the lactate concentration in gracilis muscles immediately after brief periods of activity induced by short tetanizations repeated rhythmically. The muscles were stimulated *in situ* through the obturator nerve. The circulation was intact and the arterial pressure satisfactory. As soon as possible after stimulation ceased they were frozen *in situ* with carbon dioxide snow, excised and ground to powder in liquid air. Lactate determinations were made by the method of Friedmann, Cotonio and Shaffer.¹

¹ Friedmann, T. E., Cotonio, M., and Shaffer, P. A., *J. Biol. Chem.*, 1927, **73**, 335.

For comparison rectus femoris muscles of the same animals were excised in the same manner without previous stimulation and tested for lactates according to the same technique.

Results are as follows:

Stimulation period 30 seconds.			
	Lactate in mgm.%		Lactate in mgm. %
Non-worked control	44	worked muscle	220
	56		165
Stimulation period 1 minute.			
Non-worked control	61	worked muscle	246
	63		264

The increases in lactate resulting from these brief periods of activity are equal to or greater than the increases reported by us after 15 minutes of tetanization under similar conditions.²

5209

The Therapeutic Use of Potassium in Certain Cardiac Arrhythmias.*

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The investigation of the action of potassium salts on the heart dates from the time of Ringer,¹ whose classical experiments on the frog heart are well known. Irrespective of osmotic tension, the necessity of sodium, potassium and calcium ions in a balanced solution was proved. Hering² stopped paroxysmal ventricular tachycardia and ventricular fibrillation in the dog, and many investigators including Rothberger and Winterberg,³ Anrep,⁴ and Wiggers⁵ have similarly obtained immediate cessation of both auricular and ventricular ectopic rhythms by intravenous or intracardiac injections of

² Martin, E. G., Field, J., II, and Hall, V. E., *Proc. Soc. Exp. Biol. and Med.*, 1929, **26**, 292.

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¹ Ringer, S., *J. Physiol.*, 1882, **3**, 380; 1883, **4**, 429.

² Hering, H. E., *Zentralbl. d. Physiol.*, 1903, **17**, 1.

³ Rothberger, C. J., and Winterberg, H., *Arch. f. d. ges. Physiol.*, 1911, **142**, 461.

⁴ Anrep, A., personal communication.

⁵ Wiggers, C. J., *Am. J. Physiol.*, 1930, **92**, 223.