temperature, and for invectase according to Euler and Laurin[9] is a linear function of temperature, *i. e.*, $\mu = 22{,}800–205.2\ t°$. Spohr[10] found the value of μ for the inversion of sucrose by HCl in homogeneous system to be constant at 12,800 from 25° to 55°. This is in contrast to the reaction in heterogenous system. The fact that μ for single enzymes varies continuously with temperature would lend improbability to a constancy for a complex of enzymes such as are present in the living cell.

It is concluded that μ varies continuously with the temperature in the several biological reactions examined. There is no evidence of a critical temperature nor of master or key reactions in a catenary series, as has been inferred by others from a supposed constant value of μ through a given temperature range. This discrepancy between the results and those of authors cited probably is due to the fact that they have calculated the value of μ on a graph with too small scale ordinates to account in full for the experimental accuracy of the velocity coefficients. It is suggested that a careful examination be made of all instances in which critical temperatures have been claimed in the literature.

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Further Observations on Latent Tolerance in Diabetics.

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A recent report on the stimulating effects on carbohydrate tolerance of successive short periods of a dietary high in sugar and low in protein and salt, with added insulin dosage, included data obtained on 2 mild cases in which improvement was maintained without interruption of the high sugar regime after withdrawal of insulin. Substitutions and additions were made to the diet of one of the patients, a young man 26 years old, until it was essentially normal in character . His condition was followed for 6 months without recurrence of the diabetic status. The present study is an attempt to determine how patients who were formerly insulin cases would react to an essentially similar procedure.

H., a student, age 20 years, was discharged from the hospital

[9] Euler, H. V., and Laurin, I., *Z. physiol. Chem.*, 1919, cviii, 64.

[10] Spohr, J., *Z. physik. Chem.*, 1888, ii, 194.

Nov. 26, 1928, on a maintenance diet with 12 units of insulin daily; his last blood sugar was 155 mgm. Thereafter he was managed as an out-patient, reported at short intervals to the laboratory, and received his meals from the therapeutic diet kitchen. He was able to discontinue insulin 3 weeks after his discharge after reductions to 7 units and 5 units daily. A high sugar diet period with insulin was started Jan. 4, 1929. Insulin was reduced daily until with-

TABLE 1.

H., weight 63.8 kg.; medical service No. C 7918. Admitted Nov. 20, 1928; discharged Nov. 26, 1928.

Date	Blood sugar, mgm.		Insulin, units	Diet	Weight
	9:30 a. m.	2:30 p. m.			
					kg.
1/ 4	100		none	No. 65*	65.1
5	82	62	38 (18-10-10)	H.S.*	
6	50		22 (10- 5- 7)	H.S.	
7		140	13 (7- 0- 6)	H.S.	65.1
8	77		11 (6- 0- 5)	H.S.	
9		128	8 (5- 0- 3)	H.S.	
10	100		3 (3- 0- 0)	H.S.	65.0
11		108	discontinued	H.S.	64.5
12	96			H.S.	
13	110			H.C.*	
14		121		H.C.	
16		129		H.C.	
19	93			H.C.	
21	110			H.C.	
24	130	110		H.C.*	
29		172		H.C.	65.3
30		138		H.C.	64.7
31		120		H.C.	
2/ 1		208		H.C.	
2	102			H.C.	
3	93	151		H.C.	
4		96		H.C.†	
5		100		H.C.	
6	96			H.C.	
7	105	133		H.C.	
8	105			H.C.	
9	80			H.C.*	
10	86	110		H.C.	
11	130	127		H.C.	
12	102			H.C.	
13	100	155		H.C.	
14	110	151		H.C.	
15	96	105		H.C.	
17	94			H.C.	64.0
18	101	133		H.C.	
19	96			H.C.	

*P. 65 gm., C. 65 gm., F. 162 gm., Cal. 2045; H.S. is approximately P. 46 gm., C. 205 gm., F. 117 gm., Cal. 2100; initial substitution Jan. 13, and H.C. on Jan. 24 was P. 55 gm., C. 209 gm., F. 121 gm., and on Feb. 9 P. 68 gm., C. 199 gm., F. 114 gm.

† Breakfast increased and noon meal decreased, each by a third, from this day on.

drawn on Jan. 11. As this summary is submitted, he has been 40 days on the high sugar and carbohydrate diet without insulin. Blood sugars 2 hours after breakfast have been normal, but afternoon determinations have been irregular and somewhat higher than the morning figures,

Two more patients have been studied. R., age 18 years, had been able to dispense with insulin as the result of successive short periods of high sugar diet. F., age 23 years, had been managed carefully over a period of 2 years. Both responded satisfactorily for a time on high sugar diet when insulin was withdrawn, 11 days for R. and 16 days for F., until increasing and irregular blood sugars indicated that they be returned to the previous diabetic diet. When the diabetic condition was stabilized, the high sugar diet was given again; it was more successful so far as low blood sugar values were concerned, but could be continued no longer than before. A third attempt with both subjects was much less effective, though an increased hypoglycemic response to small insulin dosage was evident; this was probably an influence of the previous high sugar periods.

These results are in accord with the idea earlier suggested that a latent tolerance obtains in many cases of diabetes mellitus. Efforts to restore a normal tolerance, especially in young adults, seem well justified.

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Integumentary Pigmentation in Frog During Metamorphosis, with Especial Reference to Tail Skin Histolysis.

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Several types of larval skin transplantation experiments were made in an attempt to determine the local specificity of frog integument during metamorphosis when transplanted to foreign regions. The grafts involved skin from the back, belly, side and tail. Observations were made with respect to specificity of the integument for pigmentation and histolysis.

Autoplastic and homoplastic larval skin grafts showed local specificity for pigmentation upon larval transformation. All grafts invariably developed the pigment pattern during metamorphosis characteristic of the region from which they had been removed. Skin transplanted from back to side, or side to back, developed nor-