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Virulence and Electrophoresis of Bacillus Diphtheriae.

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Thirty-two cultures of *B. diphtheriae* isolated from as many diagnostic throat cultures and 2 laboratory stock cultures (No. 300 and Park No. 8) all of which exhibited characteristic morphology and fermentative reactions with carbohydrates, were examined for virulence and for velocity of electrophoretic migration.

All of the cultures fermented dextrose and galactose. Some of the cultures utilized dextrin when first isolated while other strains acquired the ability to utilize this substance after continued laboratory cultivation. None of the strains fermented sucrose. Accord-

TABLE I.

Culture No.	P. D. μ/sec./volt.	Virulence (Guinea Pig)
32	.260	X
13	.340	—
1	.377	X
30	.387	X
20	.394	X
15	.394	—
14b	.395	—
9	.395	X
300	.412	X
Park-8	.416	X
21	.418	X
19	.420	X
37	.440	X
28	.457	—
10	.480	X
39	.490	X
7	.502	X
14	.505	—
31	.512	X
22	.537	X
34	.537	X
3	.550	X
6	.557	—
11	.592	X
13a	.595	X
12	.640	X
17	.650	X
35	.677	X
38	.690	X
16	.692	X
5	.714	X
29	.735	X
26	.737	—
14a	.750	X

ingly, upon the basis of carbohydrate fermentation all cultures were considered typical of *B. diphtheriae.*

Virulence was determined by intracutaneous inoculation of guinea pigs. Electrophoretic mobilities were determined by the use of a Falk micro-electrophoresis apparatus and velocities of migration calculated as micra per second per volt.

The data indicate that virulence or lack of virulence of these organisms for the guinea pig is not correlated with the observed velocity of electrophoretic migration, since 27 virulent cultures exhibited widely divergent mobility rates. P. D. varying from 0.260 to 0.750 and similarly in 7 avirulent cultures P. D. varied from 0.340 to 0.737 μ/sec./volt.

From several virulent cultures, aberrant avirulent types were developed through forced dissociation and in these latter lack of virulence was not correlated with any significant change in the rate of electrophoretic migration.

Agglutinability of cultures with high and with low P. D. in the presence of salts, such as calcium chloride and copper acetate, was determined. In general, cultures having low P. D. as indicated by low velocity of electrophoretic migration, were agglutinated by a lesser concentration of electrolyte than were the cultures having higher P. D. values. However, as noted in the electrophoresis observations agglutinability in salt solution did not bear significant relationship to the virulence of the culture

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Further Experiments on Artificial Immunity to a Larval Cestode.*

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Certain aspects of the general problem of the immunity of the albino rat to *Cysticercus fasciolaris,* begun in 1929,[1] have been investigated. In one set of experiments rats were given series of immunizing injections of: (a) a 1% suspension of powdered worm material *(Taenia taeniaeformis,* the adult stage of *C. fasciolaris)* in

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[1] Miller, H. M., Jr., PROC. SOC. EXP. BIOL. AND MED., 1930, **27**, 926; *ibid.*, 1931, **28**, 467.