Pacific Coast Branch.

University of California Hospital, February 15, 1928.

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Dormancy or Delayed Germination of Spores of Clostridium Botulinum Subjected to Heat.

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In a previous report[1] it was shown that there is a marked dormancy of spores of *Clostridium botulinum* which have been subjected to heat in broth covered with a thin layer of oil within sealed glass tubes. It has become necessary to discontinue our observations on these tubes and the final available dormancy periods are herewith presented.

These dormancy periods cannot be assumed to be the maximum possible under the conditions of our experiments since positive tubes have continued to appear from time to time until January 1, 1928. No positive tubes were obtained on February 1, but it has not been unusual for intervals of 2 or more months to elapse between the occurrence of positive tubes. The last reading was made on February 1, which is 75 months after the first tubes of the series were heated and 67 months after the heating experiments were discontinued.

In all instances, as was stated in our previous report,[1] the contents of each positive tube were tested by subculture for the presence of living bacteria, and by guinea pig inoculation for the presence of potent toxin, before it was included in our tables.

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[1] Dickson, E. C., Burke, Beck and Johnston, *J. Inf. Dis.*, 1925, xxxvi, 472.

TABLE I.

Time of Germination in Months after Spores of Clostridium Botulinum were Heated in Oil-stratified Broth in Sealed Tubes.

Months after heating.	Temperatures at which spores were heated. Degrees Centigrade.					
	100	107	115	118	121	Total
1	1532	521	1039	52	432	3576
2	68	130	312	5	57	572
3	160	124	310	8	49	651
4	126	53	220	—	42	441
5	48	33	121	1	25	228
6	35	11	49	1	18	114
7-9	39	36	98	—	24	197
10-12	9	18	41	—	12	80
13-18	39	16	62	1	27	144
19-21	3	3	2	—	—	8
22-24	15	6	21	1	8	52
25-27	9	4	21	—	5	39
28-30	5	4	8	—	3	20
31-33	2	4	5	—	—	11
34-36	1	2	7	1	1	12
37-39	1	3	9	—	2	15
40-42	4	1	6	—	1	12
43-45	1	—	4	—	1	6
46-48	2	—	8	—	2	12
49-51	—	—	6	—	2	8
52-54	1	—	1	—	—	2
55-57	—	2	2	—	1	5
58-60	—	1	5	—	2	8
61-63	—	—	1	—	—	1
64-66	—	—	2	—	—	2
67	—	—	—	—	—	—
68	—	—	—	—	—	—
69	—	1	1	—	—	2
70	—	—	—	—	—	—
71	1	—	1	—	—	2
72	1	—	—	—	—	1
73						
No. positive	2103	972	2363	70	714	6222
No. heated	3802	2905	14270	490	7954	29421

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The Adaptation in Vitro of Diphtheria Bacillus to Specific Antitoxin.

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Observations on the transmutation of toxic and virulent strains of *B. diphtheriae* into atoxic and non-virulent varieties by means of cultivation in a medium containing either normal serum or specific