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Production of Mucoid Dissociants of *B. Coli* by Thermal Variation.

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On agar-plate cultures of *B. coli* stored at 18-20°C. for one week, a mucoid outgrowth from several colonies was observed. Subcultures from this mucoid structure indicated that the mucoid characteristic could be maintained only if cultures were incubated at this temperature. Revis¹ noted that mucoid forms of *B. coli* obtained by storage of organisms in soil would retain this characteristic if incubated at 20°C. but reverted to the more typical form if incubated at 37°C. Smith's² strain of mucoid *B. coli* from bovine sources retained its mucoid consistency when stored at 4.5°C. if drying out did not take place.

Our mucoid organisms were physiologically stable. Stains revealed a zoöglæic structure similar to that reported by Revis.¹

To determine the influence of temperature on the persistence of the mucoid characteristic, transfers were made from the mucoid

TABLE I.
Incubative Temperature in Centigrade and Maintenance of Mucoid Variant of *B. coli*.

Mean Temp., °C.	Limits of Temp.	Strain of <i>B. coli</i>		
		2	3	4
4	3 - 4.5	0	0	0
8	6.5- 9.5	0	0	0
9.5	9 -11.5	0	0	0
10	5.5-10	++++	++++	++++
13	11 -15	++++	++++	++
14	13 -14	++++	++++	+++
15	14 -16	++++	++++	+++
16	14 -17.6	++++	+++	+++
17	16 -17.6	+++	+++	++
17.6	14 -20	+++	+++	++
19.5	19.5	+	++	+
21.5	17.6-21.5	+	+	+
25	25	+	+	+
29	29	+	+	+
37	37	—	—	—

0 = no growth.
+ = degree of mucoidness of growth.
— = heavy growth but no mucoid character.

¹ Revis, C., *Centralbl. f. Bakt., II Abt.*, 1910, **26**, 161.

² Smith, T., *J. Exp. Med.*, 1928, **48**, 351.

growth of 3 strains of *B. coli* on 1% glucose-agar plates. These were incubated at various temperatures for a period of 5 days before the type of growth was recorded as in Table I.

The marked correlation between incubative temperature and mucoid growth of *B. coli* indicates that the thermal factor is important in the production of mucoid dissociants of this organism.

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Bacterial Nutrition of the California Mussel.

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The sea mussel, *Mytilus californianus*, like other lamellibranchs, derives its nourishment from the microorganisms and finely divided detritus which it swallows.¹ It has been suggested that bacteria may constitute a very important part of the food of such plankton- and detritus-feeders.^{2, 3} *M. californianus* was selected for experimentation along this line because of its abundance in the vicinity, its convenient size and the ease with which it can be maintained in the laboratory.

Specimens measuring 6-9 cm. in length and weighing 20-50 gm. were scraped clean of organisms attached to their shells and placed singly in liter jars of aerated sea water in the dark. After 2 weeks' inanition a bacterial suspension was added to each jar. A red coccus and a spore-forming bacillus which were morphologically and culturally distinctive enough to be readily recognized were used. They were grown on nutrient agar in Blake bottles and washed in 2 changes of saline by centrifuging. The mussels removed most of the bacteria from suspension within 2 hours as indicated by the clearing of the water,⁴ whereas in control jars lacking mussels the water remained turbid for several hours. Three hours after the addition of about 200 million bacteria per cc., plate counts revealed the presence of less than ten thousand bacteria per cc. in jars containing mussels. That many of these bacteria were actually ingested and not merely clumped or rejected as pseudo-feces⁴ was proved by

¹ Fox, D. L., *Bull. Scripps Inst. Oceanogr.*, Tech. Ser., 1936, **4**, 1.

² MacGinitie, G. E., *Science*, 1932, **76**, 490.

³ Baier, C. R., *Arch. f. Hydrobiol.*, 1935, **29**, 183.

⁴ Fox, D. L., Sverdrup, H. U., and Cunningham, J. P., *Biol. Bull.*, 1937, **73**.