

solid-liquid tension plus the liquid-liquid tension, the bacterium will be trapped in the interface. If either solid-liquid tension exceeds the sum of the other two tensions, one liquid will spread on and engulf the bacterium; *i. e.*, if $T_{sw} > T_{so} + T_{ow}$, the organic phase will spread on and engulf the bacterium. This is the condition with acid-fast organisms in a water-oleic acid interface. The tension between the bacterial fat and fatty acid envelope and the oleic acid is low, T_{ow} is not high, and T_{sw} is greater than their sum. The bacterium passes spontaneously into the organic phase.

Similarly if $T_{so} > T_{sw} + T_{ow}$, the bacterium would pass into the water phase spontaneously. Clearly with the ordinary bacteria, $T_{sw} < T_{so} + T_{ow}$ and $T_{so} < T_{sw} + T_{ow}$, the inequality being greater as T_{ow} is higher.

Earlier attempts to formulate the surface tension factor in phagocytosis have assumed that surface tension would tend to carry the bacterium completely into either cell or plasma.

Fenn¹ has indicated the correct expectation to be that surface tension would retain the bacterium in the interface unless the condition of complete spreading obtained. Our observations substantiate the formulation of Fenn. The details will appear in an early number of the *Journal of Experimental Medicine*.

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Antirachitic properties imparted to lettuce and to growing wheat by ultraviolet irradiation.

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Wheat which was grown in the dark (etiolated) was found to have no antirachitic potency. Wheat which was grown in the light and irradiated with mercury vapor lamp conferred protection when fed to rats (10 gm. daily).

The same difference in regard to protective action against rick-

¹ Fenn, W. O., *J. Gen. Physiol.*, 1922, iv, 373.

ets was observed in vegetables which were irradiated after they had been plucked. Green lettuce leaves from the market were of no value in preventing rickets, whereas after irradiation when fed in same amounts (10 gm.) they had become antirachitic.

Therefore, in the plucked as well as in the growing green vegetable, irradiation led to the formation of an antirachitic factor.

Irradiated Wheat and Lettuce.

Rat Wt. gm.	Rickets Diet	Substance Fed (10 gm.)	Histologic Result
40-64 40-50 44-70	Low Phosphorus No. 84	Wheat <i>Irrad.</i> 1 hr. 1 ft. while growing	No. R. " " " "
40-60 44-68 40-60	"	Wheat (etiolated)	Mod. R. " " " "
40-59 40-52 40-60 24-40	"	Green Lettuce (<i>irrad.</i>) 1 hr. 1 ft.	No. R. " " Very sl. No. R.
41-61 34-54 40-64	"	Green Lettuce (<i>non-irrad.</i>)	Marked R. " " " "
44-50 40-42	"	No Lettuce	Mod. R. " "

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Antirachitic properties imparted to inert fluids by ultraviolet irradiation.

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The fact that inert fluids can be activated and rendered antirachitic by means of irradiation was reported by us some months ago.¹

Steenbock has reported a similar result in relation to the production of a growth-promoting factor. He has also confirmed

¹ Hess, A. F., *Am. Ped. Soc.*, June 7, 1924. Proceed. in *Am. J. Dis. Childr.*, 1924, xxviii, 517.