We have therefore in this case a special instance of a plant which saves its seeds until the ground beneath has been cleared by fire or excessive drought, or until the branch or tree has been killed by these or other causes.

A fair-sized plant of this small shrubby tree, 12 to 15 feet high, may possess 1,200 clusters of fruits, each averaging fifty-two undehiscent fruits, and the fruits containing approximately 250 seeds per valve, or 750 per fruit. The total number of seeds ready for dehiscence on such a tree might therefore amount to 40 or 50 millions. Hence it is hardly surprising that although the seeds are only about a millimetre long, by a fifth of a millimetre broad, the blackened ground beneath a tree whose base has been killed by a bush fire, while the upper branches are temporarily undamaged and living, should become completely covered by a brown layer of fallen seeds within a few days to a week or more.

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ON THE CONSTANCY OF CILIA-INSERTION IN BACTERIACEAE.—

For the last eight months I have kept two forms of the genus *Pseudomonas* (cylindrical cells with polar cilia) under observation, constantly re-inoculating and causing them to become perfectly adapted to their environment. My object was to ascertain whether a form which had polar cilia could, under more favourable conditions, develop cilia all round the cell, i. e. become peritrich.

In the order Spirillaceae, on account of the undulating nature of the membrane, it is not to be expected that ciliation can be other than polar, and peritrich ciliation is never found: increase of motility, as I have previously observed, in *Spirillum giganteum* (syn. *Spirillum volutans*), is correlated with an increase in the number of polar cilia.

In the case of the Bacteriaceae, however, we are dealing with organisms whose membranes are stiff, and in which it is conceivable that increase of motion would be correlated with a development of cilia on the sides as well as at the poles. This would break down the distinction between the genus *Bacillus* and the genus *Pseudomonas*.

After eight months' cultivation of two forms of the genus *Pseudomonas* I have found that in all cases the cilia remained polar, even when better adaptation to the test-tube-culture environment, and consequently greater motility, had taken place.

Hence, to attain greater motility the cilia either become stronger or else more numerous at the poles only. In this they agree with the genus *Spirillum*.

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Ellis, David. 1907. "On the constancy of cilia insertion in Bacteriaceae." *Annals of botany* 21, 137–137. <https://doi.org/10.1093/oxfordjournals.aob.a089121>.

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