in water-, as well as in pot-cultures[3,4], and in paddy-field experiments[5]. In the water-cultures with *Tolypothrix tenuis* the lengths of the leaves increased on an average by 17 per cent and the number of ears by 30 per cent. In pot-cultures with three of the blue-green algæ the effect on the lengths of the leaves is shown in Table 1.

As will be seen, the presence of *Tolypothrix* had a positive effect on the growth of the plants, the amount of nitrogen absorbed by them being 7·5 lb. per acre in excess of the control and the total nitrogen fixed at about 20 lb. per acre, while *Anabœnopsis* produced no appreciable effect. In the paddy-field experiment *Tolypothrix tenuis* positively affected the growth of the plants, increasing the rice yield both in well-drained, as well as in badly-drained, paddy fields (Table 2).

Table 2

	Rice harvest (bushels per acre)		Percentage increase
Well-drained paddy field	non-inoculated	44·9	15
	Tolypothrix-inoculated	51·8	
Badly-drained paddy field	non-inoculated	30·3	25
	Tolypothrix-inoculated	37·8	

Full details will be published elsewhere.

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Micro-electrode for Electro-physiological Work

The micro-electrode described by R. A. Weale[1] necessitates the use of an electronic device, just for breaking the circuit, when the chain of silver crystals has reached the tip of the capillary tube. Furthermore, the micro-electrode proper has three disadvantages: (1) contact is easily disrupted in the capillary part; (2) resistance is comparatively high; (3) the electrolyte remains between the crystals. These disadvantages are a consequence of the 'feathery' or 'larchlike' character of the chain of silver crystals, which do not adhere sufficiently to one another.

We have prepared micro-electrodes in the following way. A capillary tube is drawn out by a method described by P. de Fonbrune[2]. The following stages are exactly in accordance with the method of Weale, except that we use silver nitrate instead of water in the tube. Then a plating bath is made of a drop of saturated silver nitrate on a tissue-culture slide (hollow ground). The bath is put on the table of the microscope, the tip of the capillary brought into the drop and observed with a high-power objective. The plating circuit is closed by bringing the silver wire anode into the drop as well. With a plating current of 1 V., very slow growth of relatively large silver crystals starts. As soon as the rate of growth exceeds the limit of being just perceptible, the plating voltage is reduced with an adjustable resistance. After about fifteen minutes, a few tenths of one volt will be sufficient to maintain the slow growth. Quicker growth suddenly produces the feathery chain. The indispensable watching of the growth of the crystals is fairly trying, as they take about 45 minutes to reach the tip. When the chain is finished, we break the circuit, an electronic device thus being dispensed with.

The result is a micro-electrode which is massively filled with silver. Consequently (1) contact is secured by the crystals adhering closely; (2) the resistance averages one ohm; and (3) no electrolyte remains between the crystals.

This method holds good for electrodes not smaller than 5 μ. Smaller tubes fill spontaneously with silver crystals. This curious phenomenon unfortunately produces crystal chains of the feathery type. We have not yet succeeded in solving this problem.

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Bacterial Flagella

In a recent communication in *Nature*[1], Weibull tends to regard my theory of bacterial motility as incorrect and as based on misinterpretation of observations made with dark-field microscopy. He confuses the issue, as so many do, by assuming that 'flagella' in different groups of bacteria mean the same thing, whereas in reality they often are structures *sui generis* in the various groups and may have very little or even nothing in common[2–6].

Weibull states that motile bacteria always have flagella; this is incorrect. He refers to Kauffmann's statement that *H*-serum immobilizes motile bacteria immediately, because it 'paralyses' their flagella. But my *observations* have shown that *H*-serum produces a precipitate on bodies and flagella which, after a determined struggle on the part of the bacteria, becomes so thick that motility gets less and less[6,7]. This purely mechanical progressive inhibition can be watched in a cinemicrographic film I made[8]. Weibull also mentions Ørskow's observation that *Proteus* bacteria on agar, covered with ink, can give the impression that their bodies lie still while their flagella whirl ink particles about. Flagella, however, were not actually seen, and it must be difficult to make sure that the bodies really are motionless; in any event, my contention that normally the body wags the flagella does not imply that nothing else can ever move them. Kingma Boltjes's work, also quoted by Weibull in support of his criticism, is invalidated by confusing the flagella of the large spirillums with those of typhoid and *Proteus* bacteria.